

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Steel Structures (BTN01501)

Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary and mention it clearly before the solution.
 - 5) Draw the appropriate sketches wherever necessary.
 - 6) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q.No.1)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The structural advantage of using steel as a structural material is _____.
 - a) Small weight to strength
 - b) Speed of erection
 - c) Speed of dismantling
 - d) Scrap value
- 2) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110° ?
 - a) 0.6
 - b) 0.65
 - c) 0.55
 - d) 0.75
- 3) As per IS 800 purlins are designed as a _____.
 - a) Simply supported beams
 - b) Cantilever beams
 - c) Continuous beams
 - d) Compression member
- 4) Tacking bolts should have a pitch in line not exceeding _____.
 - a) $32t$ or 300 mm whichever is least for plates
 - b) 600 mm for compression members
 - c) 1000 mm for tension members
 - d) All the above is correct
- 5) The self-weight of a roof truss (N/m^2) may be obtained by _____.
 - a) $(L + 5)5$
 - b) $(L/3 + 5)10$
 - c) $(L - 5)5$
 - d) $(L/3 - 5)10$
- 6) Steel is an alloy which mainly contains _____.
 - a) iron and silica
 - b) iron and sulfur
 - c) iron and carbon
 - d) iron and sodium
- 7) The slenderness ratio of lacing flat is limited to _____.
 - a) 350
 - b) 145
 - c) 180
 - d) 250

- 8) What is the difference between end and edge distance?
- a) Edge distance is measured parallel to direction of stress, while end distance is measured perpendicular to direction of stress.
 - b) Edge distance is measured parallel to direction of stress, while end distance is measured parallel to direction of stress.
 - c) Edge distance is measured perpendicular to direction of stress, while end distance is measured perpendicular to direction of stress.
 - d) Edge distance is measured perpendicular to direction of stress, while end distance is measured parallel to direction of stress.
- 9) Minimum edge distance and end distance for rolled, machine flame cut is ____.
- a) 1.7 x hole diameter
 - b) 1.2 x hole diameter
 - c) 1.5 x hole diameter
 - d) 2.0 x hole diameter
- 10) What is the efficiency of joint when strength of bolt per pitch length is 60kN and strength of plate per pitch length is 150kN?
- a) 25%
 - b) 30%
 - c) 35%
 - d) 40%
- 11) The shape factor in plastic method of analysis depends upon ____.
- a) Yield stress of the material
 - b) Hinge length
 - c) Geometry of the section
 - d) Redistribution of moments
- 12) Which of the following is not a serviceability criteria?
- a) Deflection
 - b) Ponding
 - c) Vibration
 - d) Fatigue
- 13) For the block shear failure of a tension member, the failure occurs along a path through the connection involving ____.
- a) Tension on the two perpendicular planes
 - b) Shear on the two perpendicular planes
 - c) Tension on one plane and shear on the other perpendicular plane
 - d) Tension on the plane of connection and compression on the other perpendicular plane
- 14) The effective length of a compression member of length L held in position at both ends but not restrained in direction, is ____.
- a) L
 - b) 0.67 L
 - c) 0.85L
 - d) 1.5L

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Design of Steel Structures (BTN01501)

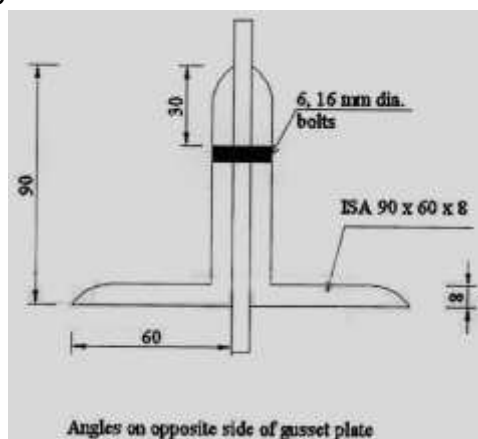
Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 and Q.6 are compulsory and solve any 2 questions from each section.
 2) Figures to the right indicates full marks.
 3) Assume suitable data if necessary and mention it clearly before solution.
 4) Draw the appropriate sketches wherever necessary.
 5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ

Section – I

- Q.2** a) Explain the limit state of strength and limit state of serviceability. **05**
 b) Explain complete, partial and over complete collapse. **05**
- Q.3** Determine the tensile capacity of the section shown in figure for following data **09**
 Diameter of bolt = 16 mm
 Number of bolts = 6
 Pitch of bolt = 40 mm
 Edge distance of bolts = 30 mm
 Grade of bolt = 4.6
 Grade of Steel Fe 410



Angles are placed on the opposite side of 12 mm thick gusset plate (tack bolted)

- Q.4** Design a single angle discontinuous strut to carry a factored axial load of 65 kN. **09**
 The length of strut is 3.0 m between intersections. It is connected to 12 mm thick gusset plate by 20 mm diameter 4.6 grade bolts.
 Use steel of grade Fe 410.
- Q.5** Design a built up laced steel column 10 m long to carry a factored axial load of **09**
 1080 kN. The column is restrained in position but not restrained against rotation at both the ends. Provide a single lacing system with bolted connections. The design should confirm to specifications of IS 800-2007. Design the column with two channels placed back to back. Also design a suitable single lacing system. Assume steel of grade Fe 410 and bolts of grade 4.6

Section – II

- Q.6** Find the shape factor for following sections. **10**
a) Square of side 'a' with its diagonal parallel to zz-axis
b) Circular section
- Q.7** A simply supported steel beam of span 4 m effective span is laterally supported throughout. The loads supported by the beam comprise of uniformly distributed service live load of 40kN. (inclusive of self-weight) Adopting Fe410 grade steel, design the simply supported beam according to the specifications of IS 800-2007. **09**
- Q.8** Design an I section purlin for industrial building supporting GI sheet roof for the following data. **09**
Spacing of trusses = 4.5m
Span of truss = 12 m
Spacing of purlins = 1.4 m
Inclination of main rafter to horizontal = 26.565°
Weight of GI sheets = 171 N/m^2
Wind load = 1.2 kN/m^2
Grade of steel Fe 410
- Q.9** A column ISHB 300 @ 577 N/m carries an axial compressive factored load of 1000KN. Design a suitable welded gusset base. The base rests on M20 grade concrete pedestal. **09**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Steel Structures (BTN01501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
- 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
- 3) Figures to the right indicates full marks.
- 4) Assume suitable data if necessary and mention it clearly before the solution.
- 5) Draw the appropriate sketches wherever necessary.
- 6) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q.No.1)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the difference between end and edge distance?
 - a) Edge distance is measured parallel to direction of stress, while end distance is measured perpendicular to direction of stress.
 - b) Edge distance is measured parallel to direction of stress, while end distance is measured parallel to direction of stress.
 - c) Edge distance is measured perpendicular to direction of stress, while end distance is measured perpendicular to direction of stress.
 - d) Edge distance is measured perpendicular to direction of stress, while end distance is measured parallel to direction of stress.
- 2) Minimum edge distance and end distance for rolled, machine flame cut is _____.
 - a) 1.7 x hole diameter
 - b) 1.2 x hole diameter
 - c) 1.5 x hole diameter
 - d) 2.0 x hole diameter
- 3) What is the efficiency of joint when strength of bolt per pitch length is 60kN and strength of plate per pitch length is 150kN?
 - a) 25%
 - b) 30%
 - c) 35%
 - d) 40%
- 4) The shape factor in plastic method of analysis depends upon _____.
 - a) Yield stress of the material
 - b) Hinge length
 - c) Geometry of the section
 - d) Redistribution of moments
- 5) Which of the following is not a serviceability criteria?
 - a) Deflection
 - b) Ponding
 - c) Vibration
 - d) Fatigue

- 6) For the block shear failure of a tension member, the failure occurs along a path through the connection involving _____.
- a) Tension on the two perpendicular planes
 - b) Shear on the two perpendicular planes
 - c) Tension on one plane and shear on the other perpendicular plane
 - d) Tension on the plane of connection and compression on the other perpendicular plane
- 7) The effective length of a compression member of length L held in position at both ends but not restrained in direction, is _____.
- a) L
 - b) $0.67 L$
 - c) $0.85L$
 - d) $1.5L$
- 8) The structural advantage of using steel as a structural material is _____.
- a) Small weight to strength
 - b) Speed of erection
 - c) Speed of dismantling
 - d) Scrap value
- 9) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110° ?
- a) 0.6
 - b) 0.65
 - c) 0.55
 - d) 0.75
- 10) As per IS 800 purlins are designed as a _____.
- a) Simply supported beams
 - b) Cantilever beams
 - c) Continuous beams
 - d) Compression member
- 11) Tacking bolts should have a pitch in line not exceeding _____.
- a) $32 t$ or 300 mm whichever is least for plates
 - b) 600 mm for compression members
 - c) 1000 mm for tension members
 - d) All the above is correct
- 12) The self-weight of a roof truss (N/m^2) may be obtained by _____.
- a) $(L + 5)5$
 - b) $(L/3 + 5)10$
 - c) $(L - 5)5$
 - d) $(L/3 - 5)10$
- 13) Steel is an alloy which mainly contains _____.
- a) iron and silica
 - b) iron and sulfur
 - c) iron and carbon
 - d) iron and sodium
- 14) The slenderness ratio of lacing flat is limited to _____.
- a) 350
 - b) 145
 - c) 180
 - d) 250

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Steel Structures (BTN01501)

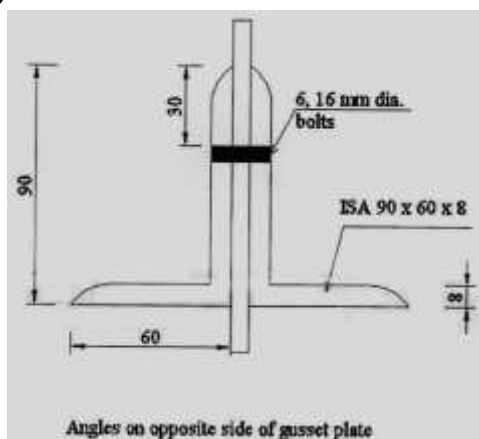
Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 and Q.6 are compulsory and solve any 2 questions from each section.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary and mention it clearly before solution.
4) Draw the appropriate sketches wherever necessary.
5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ

Section – I

- Q.2** a) Explain the limit state of strength and limit state of serviceability. **05**
b) Explain complete, partial and over complete collapse. **05**
- Q.3** Determine the tensile capacity of the section shown in figure for following data **09**
Diameter of bolt = 16 mm
Number of bolts = 6
Pitch of bolt = 40 mm
Edge distance of bolts = 30 mm
Grade of bolt = 4.6
Grade of Steel Fe 410



Angles are placed on the opposite side of 12 mm thick gusset plate (tack bolted)

- Q.4** Design a single angle discontinuous strut to carry a factored axial load of 65 kN. **09**
The length of strut is 3.0 m between intersections. It is connected to 12 mm thick gusset plate by 20 mm diameter 4.6 grade bolts.
Use steel of grade Fe 410.
- Q.5** Design a built up laced steel column 10 m long to carry a factored axial load of **09**
1080 kN. The column is restrained in position but not restrained against rotation at both the ends. Provide a single lacing system with bolted connections. The design should confirm to specifications of IS 800-2007. Design the column with two channels placed back to back. Also design a suitable single lacing system. Assume steel of grade Fe 410 and bolts of grade 4.6

Section – II

- Q.6** Find the shape factor for following sections. **10**
a) Square of side 'a' with its diagonal parallel to zz-axis
b) Circular section
- Q.7** A simply supported steel beam of span 4 m effective span is laterally supported throughout. The loads supported by the beam comprise of uniformly distributed service live load of 40kN. (inclusive of self-weight) Adopting Fe410 grade steel, design the simply supported beam according to the specifications of IS 800-2007. **09**
- Q.8** Design an I section purlin for industrial building supporting GI sheet roof for the following data. **09**
Spacing of trusses = 4.5m
Span of truss = 12 m
Spacing of purlins = 1.4 m
Inclination of main rafter to horizontal = 26.565°
Weight of GI sheets = 171 N/m^2
Wind load = 1.2 kN/m^2
Grade of steel Fe 410
- Q.9** A column ISHB 300 @ 577 N/m carries an axial compressive factored load of 1000KN. Design a suitable welded gusset base. The base rests on M20 grade concrete pedestal. **09**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Steel Structures (BTN01501)

Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary and mention it clearly before the solution.
 - 5) Draw the appropriate sketches wherever necessary.
 - 6) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q.No.1)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The shape factor in plastic method of analysis depends upon _____.
 - a) Yield stress of the material
 - b) Hinge length
 - c) Geometry of the section
 - d) Redistribution of moments
- 2) Which of the following is not a serviceability criteria?
 - a) Deflection
 - b) Ponding
 - c) Vibration
 - d) Fatigue
- 3) For the block shear failure of a tension member, the failure occurs along a path through the connection involving _____.
 - a) Tension on the two perpendicular planes
 - b) Shear on the two perpendicular planes
 - c) Tension on one plane and shear on the other perpendicular plane
 - d) Tension on the plane of connection and compression on the other perpendicular plane
- 4) The effective length of a compression member of length L held in position at both ends but not restrained in direction, is _____.
 - a) L
 - b) 0.67 L
 - c) 0.85L
 - d) 1.5L
- 5) The structural advantage of using steel as a structural material is _____.
 - a) Small weight to strength
 - b) Speed of erection
 - c) Speed of dismantling
 - d) Scrap value
- 6) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110°?
 - a) 0.6
 - b) 0.65
 - c) 0.55
 - d) 0.75

- 7) As per IS 800 purlins are designed as a _____.
- a) Simply supported beams b) Cantilever beams
c) Continuous beams d) Compression member
- 8) Tacking bolts should have a pitch in line not exceeding _____.
- a) 32 t or 300 m whichever is least for plates
b) 600 mm for compression members
c) 1000 mm for tension members
d) All the above is correct
- 9) The self- weight of a roof truss (N/m^2) may be obtained by _____.
- a) $(L + 5)5$ b) $(L/3 + 5)10$
c) $(L - 5)5$ d) $(L/3 - 5)10$
- 10) Steel is an alloy which mainly contains _____.
- a) iron and silica b) iron and sulfur
c) iron and carbon d) iron and sodium
- 11) The slenderness ratio of lacing flat is limited to _____.
- a) 350 b) 145
c) 180 d) 250
- 12) What is the difference between end and edge distance?
- a) Edge distance is measured parallel to direction of stress, while end distance is measured perpendicular to direction of stress.
b) Edge distance is measured parallel to direction of stress, while end distance is measured parallel to direction of stress.
c) Edge distance is measured perpendicular to direction of stress, while end distance is measured perpendicular to direction of stress.
d) Edge distance is measured perpendicular to direction of stress, while end distance is measured parallel to direction of stress.
- 13) Minimum edge distance and end distance for rolled, machine flame cut is _____.
- a) 1.7 x hole diameter b) 1.2 x hole diameter
c) 1.5 x hole diameter d) 2.0 x hole diameter
- 14) What is the efficiency of joint when strength of bolt per pitch length is 60kN and strength of plate per pitch length is 150kN?
- a) 25% b) 30%
c) 35% d) 40%

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Steel Structures (BTN01501)

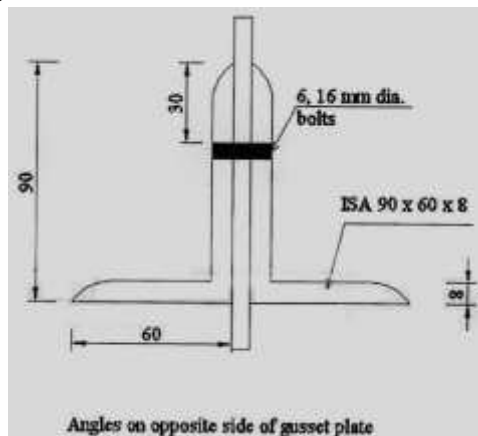
Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 and Q.6 are compulsory and solve any 2 questions from each section.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary and mention it clearly before solution.
4) Draw the appropriate sketches wherever necessary.
5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ

Section – I

- Q.2** a) Explain the limit state of strength and limit state of serviceability. **05**
b) Explain complete, partial and over complete collapse. **05**
- Q.3** Determine the tensile capacity of the section shown in figure for following data **09**
Diameter of bolt = 16 mm
Number of bolts = 6
Pitch of bolt = 40 mm
Edge distance of bolts = 30 mm
Grade of bolt = 4.6
Grade of Steel Fe 410



Angles are placed on the opposite side of 12 mm thick gusset plate (tack bolted)

- Q.4** Design a single angle discontinuous strut to carry a factored axial load of 65 kN. **09**
The length of strut is 3.0 m between intersections. It is connected to 12 mm thick gusset plate by 20 mm diameter 4.6 grade bolts.
Use steel of grade Fe 410.
- Q.5** Design a built up laced steel column 10 m long to carry a factored axial load of **09**
1080 kN. The column is restrained in position but not restrained against rotation at both the ends. Provide a single lacing system with bolted connections. The design should confirm to specifications of IS 800-2007. Design the column with two channels placed back to back. Also design a suitable single lacing system. Assume steel of grade Fe 410 and bolts of grade 4.6

Section – II

- Q.6** Find the shape factor for following sections. **10**
a) Square of side 'a' with its diagonal parallel to zz-axis
b) Circular section
- Q.7** A simply supported steel beam of span 4 m effective span is laterally supported throughout. The loads supported by the beam comprise of uniformly distributed service live load of 40kN. (inclusive of self-weight) Adopting Fe410 grade steel, design the simply supported beam according to the specifications of IS 800-2007. **09**
- Q.8** Design an I section purlin for industrial building supporting GI sheet roof for the following data. **09**
Spacing of trusses = 4.5m
Span of truss = 12 m
Spacing of purlins = 1.4 m
Inclination of main rafter to horizontal = 26.565°
Weight of GI sheets = 171 N/m^2
Wind load = 1.2 kN/m^2
Grade of steel Fe 410
- Q.9** A column ISHB 300 @ 577 N/m carries an axial compressive factored load of 1000KN. Design a suitable welded gusset base. The base rests on M20 grade concrete pedestal. **09**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Steel Structures (BTN01501)

Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary and mention it clearly before the solution.
 - 5) Draw the appropriate sketches wherever necessary.
 - 6) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q.No.1)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Steel is an alloy which mainly contains _____.
 - a) iron and silica
 - b) iron and sulfur
 - c) iron and carbon
 - d) iron and sodium
- 2) The slenderness ratio of lacing flat is limited to _____.
 - a) 350
 - b) 145
 - c) 180
 - d) 250
- 3) What is the difference between end and edge distance?
 - a) Edge distance is measured parallel to direction of stress, while end distance is measured perpendicular to direction of stress.
 - b) Edge distance is measured parallel to direction of stress, while end distance is measured parallel to direction of stress.
 - c) Edge distance is measured perpendicular to direction of stress, while end distance is measured perpendicular to direction of stress.
 - d) Edge distance is measured perpendicular to direction of stress, while end distance is measured parallel to direction of stress.
- 4) Minimum edge distance and end distance for rolled, machine flame cut is _____.
 - a) 1.7 x hole diameter
 - b) 1.2 x hole diameter
 - c) 1.5 x hole diameter
 - d) 2.0 x hole diameter
- 5) What is the efficiency of joint when strength of bolt per pitch length is 60kN and strength of plate per pitch length is 150kN?
 - a) 25%
 - b) 30%
 - c) 35%
 - d) 40%
- 6) The shape factor in plastic method of analysis depends upon _____.
 - a) Yield stress of the material
 - b) Hinge length
 - c) Geometry of the section
 - d) Redistribution of moments

- 7) Which of the following is not a serviceability criteria?
a) Deflection
b) Ponding
c) Vibration
d) Fatigue
- 8) For the block shear failure of a tension member, the failure occurs along a path through the connection involving _____.
a) Tension on the two perpendicular planes
b) Shear on the two perpendicular planes
c) Tension on one plane and shear on the other perpendicular plane
d) Tension on the plane of connection and compression on the other perpendicular plane
- 9) The effective length of a compression member of length L held in position at both ends but not restrained in direction, is _____.
a) L
b) $0.67L$
c) $0.85L$
d) $1.5L$
- 10) The structural advantage of using steel as a structural material is _____.
a) Small weight to strength
b) Speed of erection
c) Speed of dismantling
d) Scrap value
- 11) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110° ?
a) 0.6
b) 0.65
c) 0.55
d) 0.75
- 12) As per IS 800 purlins are designed as a _____.
a) Simply supported beams
b) Cantilever beams
c) Continuous beams
d) Compression member
- 13) Tacking bolts should have a pitch in line not exceeding _____.
a) $32t$ or 300 mm whichever is least for plates
b) 600 mm for compression members
c) 1000 mm for tension members
d) All the above is correct
- 14) The self-weight of a roof truss (N/m^2) may be obtained by _____.
a) $(L + 5)5$
b) $(L/3 + 5)10$
c) $(L - 5)5$
d) $(L/3 - 5)10$

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Steel Structures (BTN01501)

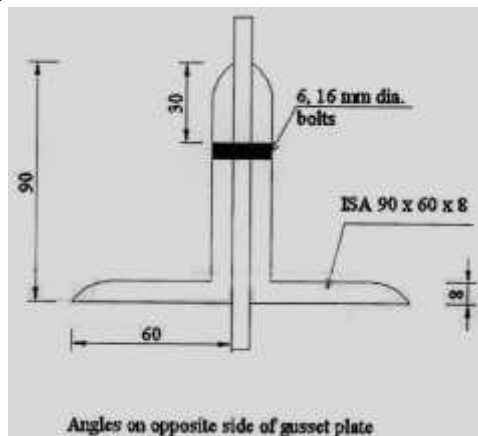
Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 and Q.6 are compulsory and solve any 2 questions from each section.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary and mention it clearly before solution.
4) Draw the appropriate sketches wherever necessary.
5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ

Section – I

- Q.2** a) Explain the limit state of strength and limit state of serviceability. **05**
b) Explain complete, partial and over complete collapse. **05**
- Q.3** Determine the tensile capacity of the section shown in figure for following data **09**
Diameter of bolt = 16 mm
Number of bolts = 6
Pitch of bolt = 40 mm
Edge distance of bolts = 30 mm
Grade of bolt = 4.6
Grade of Steel Fe 410



Angles are placed on the opposite side of 12 mm thick gusset plate (tack bolted)

- Q.4** Design a single angle discontinuous strut to carry a factored axial load of 65 kN. **09**
The length of strut is 3.0 m between intersections. It is connected to 12 mm thick gusset plate by 20 mm diameter 4.6 grade bolts.
Use steel of grade Fe 410.
- Q.5** Design a built up laced steel column 10 m long to carry a factored axial load of **09**
1080 kN. The column is restrained in position but not restrained against rotation at both the ends. Provide a single lacing system with bolted connections. The design should confirm to specifications of IS 800-2007. Design the column with two channels placed back to back. Also design a suitable single lacing system. Assume steel of grade Fe 410 and bolts of grade 4.6

Section – II

- Q.6** Find the shape factor for following sections. **10**
a) Square of side 'a' with its diagonal parallel to zz-axis
b) Circular section
- Q.7** A simply supported steel beam of span 4 m effective span is laterally supported throughout. The loads supported by the beam comprise of uniformly distributed service live load of 40kN. (inclusive of self-weight) Adopting Fe410 grade steel, design the simply supported beam according to the specifications of IS 800-2007. **09**
- Q.8** Design an I section purlin for industrial building supporting GI sheet roof for the following data. **09**
Spacing of trusses = 4.5m
Span of truss = 12 m
Spacing of purlins = 1.4 m
Inclination of main rafter to horizontal = 26.565°
Weight of GI sheets = 171 N/m^2
Wind load = 1.2 kN/m^2
Grade of steel Fe 410
- Q.9** A column ISHB 300 @ 577 N/m carries an axial compressive factored load of 1000KN. Design a suitable welded gusset base. The base rests on M20 grade concrete pedestal. **09**

Seat
No.

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data, if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The Three phase soil system consists of _____.
 a) Soil, water and air b) Solids, semi-solids and water
 c) Soil, semi-solids and water d) Solids water and air
- 2) The purpose of using sand in sand replacement method is _____.
 a) To determine the density of sand
 b) To determine the density of soil
 c) To determine the volume of site hole
 d) To determine the weight of excavated soil
- 3) Which of the following methods is used for the determination of *in situ* density of soils?
 a) sand replacement method b) core cutter method
 c) rubber balloon method d) all of these
- 4) A soil mass has a liquid limit of 45 % plasticity index of 25% and a natural moisture content of 15%. The soil is in a state of _____.
 a) solid b) plastic
 c) semi – solid d) liquid
- 5) Darcy's law is applicable if a soil is _____.
 a) incompressible b) homogeneous
 c) isotropic d) all of these
- 6) The critical exit gradient for the seepage of water out of a soil is _____.
 a) $\frac{G - 1}{1 - e'}$ b) $\frac{G - 1}{1 + e'}$
 c) $\frac{G + 1}{1 - e'}$ d) $\frac{G + 1}{1 + e'}$
- 7) If the angle of shearing resistance for a backfill $\phi = 35^\circ$, the coefficient of active earth pressure as per Rankine's theory is _____.
 a) 0.27 b) 0.33
 c) 0.53 d) 3

- 8) The main advantage of triaxial compression test is _____.
a) Failure takes place on weakest plane
b) Complete control over drainage conditions
c) Stress distribution on failure plane is uniform
d) All of these
- 9) If specific gravity of soil solids of a soil having optimum moisture content 16.5% and maximum dry density 15.7 kN/m^3 is 2.65, void ratio at optimum moisture content is _____.
a) 0.588
b) 0.655
c) 0.788
d) 0.888
- 10) Select the incorrect statement _____.
a) Relative compaction is the same as relative density
b) As the compaction is increased the optimum water content increases
c) Zero air void line and 100 % saturation line are identical
d) The shear strength of soil always increases with an increase in compaction
- 11) Which of the earth pressure coefficient is minimum?
a) Passive
b) Active
c) At rest
d) None of these
- 12) For 50% degree of consolidation time factor is _____.
a) 0.1963
b) 0.382
c) 4
d) 1
- 13) For a retaining wall of height 3 m with cohesion less backfill of $\phi = 35^\circ$ the distance of resultant earth pressure above the base of wall is _____.
a) 0.33 m
b) 1.33 m
c) 1 m
d) 1.5 m
- 14) In compaction of soil, the water content at which we get maximum density is called _____.
a) Minimum water content
b) Maximum water content
c) Optimum moisture content
d) None of these

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and Q. No. 6 is compulsory.
 2) Attempts any two questions from the remaining questions of each section.
 3) Figures to the right indicates full marks.
 4) Assume additional data, if required and state it clearly.

Section – I

- Q.2 Answer any four questions. 08**
- a) Define coefficient of curvature and coefficient of uniformity.
 - b) Write Coulomb's equation of shear strength.
 - c) Define Degree of saturation and air content
 - d) Enlist uses of flow net.
 - e) Define Quick sand Condition.
- Q.3 a) Enlist various soil consistency Indices. Explain any one in detail. 05**
b) Flow net is developed for a concrete weir. Related data is as below: 05
- 1) Total head causing seepage - 8m
 - 2) Length of weir - 80m
 - 3) No. of potential drops - 8
 - 4) No. of flow channels - 4
 - 5) Coefficient of permeability of foundation soil is - 6.4×10^{-5} cm/sec
- Determine the seepage loss in cubic metres per day per meter length of weir.
- Q.4 a) Porosity of soil sample is 30%, and specific gravity of its particle is 2.65. 05**
 Calculate its void ratio, dry unit weight, saturated unit weight, and submerged unit weight. Also calculate the bulk unit weight of soil, if its degree of saturation is 70%.
- b) Derive the equation of Coefficient of permeability by falling head method. 05**
- Q.5 a) Derive the equation of inclination of failure plane. 05**
b) Triaxial test was conducted on a $C - \phi$ soil, the chamber pressure was 05
 250kPa and failure occurred at an additional axial pressure of 350kPa. If failure plane makes an angle of 52° with horizontal, find the shear parameters for this soil.

Section – II

Q.6 Answer any four questions. 08

- Differentiate Light and heavy compaction
- What are the assumptions of Rankine's theory?
- Differentiate between normally consolidated & over consolidated soils.
- Enlist the coefficient of earth pressure of various types of earth pressure.
- Differentiate between compaction & consolidation.

Q.7 a) Describe the heavy proctor compaction test for determining compaction properties of soil. 05

- b) A proctor compaction test was conducted on a soil sample and the following observations were made: 05**

Water content %	8	11.5	14.5	17.5	19.5	21.5
Mass of wet soil (kg)	1.70	1.90	2	1.98	1.95	1.92

The volume of the mould used was 950 ml. Make necessary calculations and plot the compaction curve and obtain the maximum dry density and optimum water content.

Q.8 a) Draw the e-log p curve and discuss the salient features of it. 05

- b) How many days would be required by a clay stratum 5 m thick draining at both ends with an average value of coefficient of consolidation equal to $50 \times 10^{-4} \text{ cm}^2/\text{sec}$ to attain 50% of its ultimate settlement? 05**

Q.9 a) Differentiate in detail between Rankine & columb theory of earth pressure. 05

- b) A retaining wall 5 m high supports a cohesionless backfill with $\Phi = 32^\circ$, $\gamma = 19 \text{ kN/m}^3$ with horizontal top, flush with the top of the wall. The backfill carries a surcharge of 15 kN/m^2 . If the wall is moving away from the backfill compute the total pressure on the wall & its point of application. 05**

- 8) The Three phase soil system consists of _____.
- a) Soil, water and air b) Solids, semi-solids and water
c) Soil, semi-solids and water d) Solids water and air
- 9) The purpose of using sand in sand replacement method is _____.
- a) To determine the density of sand
b) To determine the density of soil
c) To determine the volume of site hole
d) To determine the weight of excavated soil
- 10) Which of the following methods is used for the determination of *in situ* density of soils?
- a) sand replacement method b) core cutter method
c) rubber balloon method d) all of these
- 11) A soil mass has a liquid limit of 45 % plasticity index of 25% and a natural moisture content of 15%. The soil is in a state of _____.
- a) solid b) plastic
c) semi – solid d) liquid
- 12) Darcy's law is applicable if a soil is _____.
- a) incompressible b) homogeneous
c) isotropic d) all of these
- 13) The critical exit gradient for the seepage of water out of a soil is _____.
- a) $\frac{G - 1}{1 - e'}$ b) $\frac{G - 1}{1 + e'}$
c) $\frac{G + 1}{1 - e'}$ d) $\frac{G + 1}{1 + e'}$
- 14) If the angle of shearing resistance for a backfill $\phi = 35^\circ$, the coefficient of active earth pressure as per Rankine's theory is _____.
- a) 0.27 b) 0.33
c) 0.53 d) 3

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and Q. No. 6 is compulsory.
 2) Attempts any two questions from the remaining questions of each section.
 3) Figures to the right indicates full marks.
 4) Assume additional data, if required and state it clearly.

Section – I

- Q.2 Answer any four questions. 08**
- a) Define coefficient of curvature and coefficient of uniformity.
 - b) Write Coulomb's equation of shear strength.
 - c) Define Degree of saturation and air content
 - d) Enlist uses of flow net.
 - e) Define Quick sand Condition.
- Q.3 a) Enlist various soil consistency Indices. Explain any one in detail. 05**
b) Flow net is developed for a concrete weir. Related data is as below: 05
- 1) Total head causing seepage - 8m
 - 2) Length of weir - 80m
 - 3) No. of potential drops - 8
 - 4) No. of flow channels - 4
 - 5) Coefficient of permeability of foundation soil is - 6.4×10^{-5} cm/sec
- Determine the seepage loss in cubic metres per day per meter length of weir.
- Q.4 a) Porosity of soil sample is 30%, and specific gravity of its particle is 2.65. 05**
 Calculate its void ratio, dry unit weight, saturated unit weight, and submerged unit weight. Also calculate the bulk unit weight of soil, if its degree of saturation is 70%.
- b) Derive the equation of Coefficient of permeability by falling head method. 05**
- Q.5 a) Derive the equation of inclination of failure plane. 05**
b) Triaxial test was conducted on a $C - \phi$ soil, the chamber pressure was 05
 250kPa and failure occurred at an additional axial pressure of 350kPa. If failure plane makes an angle of 52° with horizontal, find the shear parameters for this soil.

Section – II

Q.6 Answer any four questions. 08

- Differentiate Light and heavy compaction
- What are the assumptions of Rankine's theory?
- Differentiate between normally consolidated & over consolidated soils.
- Enlist the coefficient of earth pressure of various types of earth pressure.
- Differentiate between compaction & consolidation.

Q.7 a) Describe the heavy proctor compaction test for determining compaction properties of soil. 05

- b) A proctor compaction test was conducted on a soil sample and the following observations were made: 05**

Water content %	8	11.5	14.5	17.5	19.5	21.5
Mass of wet soil (kg)	1.70	1.90	2	1.98	1.95	1.92

The volume of the mould used was 950 ml. Make necessary calculations and plot the compaction curve and obtain the maximum dry density and optimum water content.

Q.8 a) Draw the e-log p curve and discuss the salient features of it. 05

- b) How many days would be required by a clay stratum 5 m thick draining at both ends with an average value of coefficient of consolidation equal to $50 \times 10^{-4} \text{ cm}^2/\text{sec}$ to attain 50% of its ultimate settlement? 05**

Q.9 a) Differentiate in detail between Rankine & columb theory of earth pressure. 05

- b) A retaining wall 5 m high supports a cohesionless backfill with $\Phi = 32^\circ$, $\gamma = 19 \text{ kN/m}^3$ with horizontal top, flush with the top of the wall. The backfill carries a surcharge of 15 kN/m^2 . If the wall is moving away from the backfill compute the total pressure on the wall & its point of application. 05**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data, if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the earth pressure coefficient is minimum?
 - a) Passive
 - b) Active
 - c) At rest
 - d) None of these
- 2) For 50% degree of consolidation time factor is _____.
 - a) 0.1963
 - b) 0.382
 - c) 4
 - d) 1
- 3) For a retaining wall of height 3 m with cohesion less backfill of $\phi = 35^\circ$ the distance of resultant earth pressure above the base of wall is _____.
 - a) 0.33 m
 - b) 1.33 m
 - c) 1 m
 - d) 1.5 m
- 4) In compaction of soil, the water content at which we get maximum density is called _____.
 - a) Minimum water content
 - b) Maximum water content
 - c) Optimum moisture content
 - d) None of these
- 5) The Three phase soil system consists of _____.
 - a) Soil, water and air
 - b) Solids, semi-solids and water
 - c) Soil, semi-solids and water
 - d) Solids water and air
- 6) The purpose of using sand in sand replacement method is _____.
 - a) To determine the density of sand
 - b) To determine the density of soil
 - c) To determine the volume of site hole
 - d) To determine the weight of excavated soil
- 7) Which of the following methods is used for the determination of *in situ* density of soils?
 - a) sand replacement method
 - b) core cutter method
 - c) rubber balloon method
 - d) all of these

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and Q. No. 6 is compulsory.
 2) Attempts any two questions from the remaining questions of each section.
 3) Figures to the right indicates full marks.
 4) Assume additional data, if required and state it clearly.

Section – I

- Q.2 Answer any four questions. 08**
- a) Define coefficient of curvature and coefficient of uniformity.
 - b) Write Coulomb's equation of shear strength.
 - c) Define Degree of saturation and air content
 - d) Enlist uses of flow net.
 - e) Define Quick sand Condition.
- Q.3 a) Enlist various soil consistency Indices. Explain any one in detail. 05**
b) Flow net is developed for a concrete weir. Related data is as below: 05
- 1) Total head causing seepage - 8m
 - 2) Length of weir - 80m
 - 3) No. of potential drops - 8
 - 4) No. of flow channels - 4
 - 5) Coefficient of permeability of foundation soil is - 6.4×10^{-5} cm/sec
- Determine the seepage loss in cubic metres per day per meter length of weir.
- Q.4 a) Porosity of soil sample is 30%, and specific gravity of its particle is 2.65. 05**
 Calculate its void ratio, dry unit weight, saturated unit weight, and submerged unit weight. Also calculate the bulk unit weight of soil, if its degree of saturation is 70%.
- b) Derive the equation of Coefficient of permeability by falling head method. 05**
- Q.5 a) Derive the equation of inclination of failure plane. 05**
b) Triaxial test was conducted on a $C - \phi$ soil, the chamber pressure was 05
 250kPa and failure occurred at an additional axial pressure of 350kPa. If failure plane makes an angle of 52° with horizontal, find the shear parameters for this soil.

Section – II

Q.6 Answer any four questions. 08

- Differentiate Light and heavy compaction
- What are the assumptions of Rankine's theory?
- Differentiate between normally consolidated & over consolidated soils.
- Enlist the coefficient of earth pressure of various types of earth pressure.
- Differentiate between compaction & consolidation.

Q.7 a) Describe the heavy proctor compaction test for determining compaction properties of soil. 05

- b) A proctor compaction test was conducted on a soil sample and the following observations were made: 05**

Water content %	8	11.5	14.5	17.5	19.5	21.5
Mass of wet soil (kg)	1.70	1.90	2	1.98	1.95	1.92

The volume of the mould used was 950 ml. Make necessary calculations and plot the compaction curve and obtain the maximum dry density and optimum water content.

Q.8 a) Draw the e-log p curve and discuss the salient features of it. 05

- b) How many days would be required by a clay stratum 5 m thick draining at both ends with an average value of coefficient of consolidation equal to $50 \times 10^{-4} \text{ cm}^2/\text{sec}$ to attain 50% of its ultimate settlement? 05**

Q.9 a) Differentiate in detail between Rankine & columb theory of earth pressure. 05

- b) A retaining wall 5 m high supports a cohesionless backfill with $\Phi = 32^\circ$, $\gamma = 19 \text{ kN/m}^3$ with horizontal top, flush with the top of the wall. The backfill carries a surcharge of 15 kN/m^2 . If the wall is moving away from the backfill compute the total pressure on the wall & its point of application. 05**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data, if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The critical exit gradient for the seepage of water out of a soil is _____.

a) $\frac{G-1}{1-e'}$	b) $\frac{G-1}{1+e'}$
c) $\frac{G+1}{1-e'}$	d) $\frac{G+1}{1+e'}$

- 2) If the angle of shearing resistance for a backfill $\phi = 35^\circ$, the coefficient of active earth pressure as per Rankine's theory is _____.

a) 0.27	b) 0.33
c) 0.53	d) 3

- 3) The main advantage of triaxial compression test is _____.
 - a) Failure takes place on weakest plane
 - b) Complete control over drainage conditions
 - c) Stress distribution on failure plane is uniform
 - d) All of these

- 4) If specific gravity of soil solids of a soil having optimum moisture content 16.5% and maximum dry density 15.7 kN/m^3 is 2.65, void ratio at optimum moisture content is _____.

a) 0.588	b) 0.655
c) 0.788	d) 0.888

- 5) Select the incorrect statement _____.
 - a) Relative compaction is the same as relative density
 - b) As the compaction is increased the optimum water content increases
 - c) Zero air void line and 100 % saturation line are identical
 - d) The shear strength of soil always increases with an increase in compaction

- 6) Which of the earth pressure coefficient is minimum?

a) Passive	b) Active
c) At rest	d) None of these

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Geotechnical Engineering (BTN01502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and Q. No. 6 is compulsory.
 2) Attempts any two questions from the remaining questions of each section.
 3) Figures to the right indicates full marks.
 4) Assume additional data, if required and state it clearly.

Section – I

- Q.2 Answer any four questions. 08**
- a) Define coefficient of curvature and coefficient of uniformity.
 - b) Write Coulomb's equation of shear strength.
 - c) Define Degree of saturation and air content
 - d) Enlist uses of flow net.
 - e) Define Quick sand Condition.
- Q.3 a) Enlist various soil consistency Indices. Explain any one in detail. 05**
b) Flow net is developed for a concrete weir. Related data is as below: 05
- 1) Total head causing seepage - 8m
 - 2) Length of weir - 80m
 - 3) No. of potential drops - 8
 - 4) No. of flow channels - 4
 - 5) Coefficient of permeability of foundation soil is - 6.4×10^{-5} cm/sec
- Determine the seepage loss in cubic metres per day per meter length of weir.
- Q.4 a) Porosity of soil sample is 30%, and specific gravity of its particle is 2.65. 05**
 Calculate its void ratio, dry unit weight, saturated unit weight, and submerged unit weight. Also calculate the bulk unit weight of soil, if its degree of saturation is 70%.
- b) Derive the equation of Coefficient of permeability by falling head method. 05**
- Q.5 a) Derive the equation of inclination of failure plane. 05**
b) Triaxial test was conducted on a $C - \phi$ soil, the chamber pressure was 05
 250kPa and failure occurred at an additional axial pressure of 350kPa. If failure plane makes an angle of 52° with horizontal, find the shear parameters for this soil.

Section – II

Q.6 Answer any four questions. 08

- Differentiate Light and heavy compaction
- What are the assumptions of Rankine's theory?
- Differentiate between normally consolidated & over consolidated soils.
- Enlist the coefficient of earth pressure of various types of earth pressure.
- Differentiate between compaction & consolidation.

Q.7 a) Describe the heavy proctor compaction test for determining compaction properties of soil. 05

- b) A proctor compaction test was conducted on a soil sample and the following observations were made: 05**

Water content %	8	11.5	14.5	17.5	19.5	21.5
Mass of wet soil (kg)	1.70	1.90	2	1.98	1.95	1.92

The volume of the mould used was 950 ml. Make necessary calculations and plot the compaction curve and obtain the maximum dry density and optimum water content.

Q.8 a) Draw the e-log p curve and discuss the salient features of it. 05

- b) How many days would be required by a clay stratum 5 m thick draining at both ends with an average value of coefficient of consolidation equal to 50×10^{-4} cm²/sec to attain 50% of its ultimate settlement? 05**

Q.9 a) Differentiate in detail between Rankine & columb theory of earth pressure. 05

- b) A retaining wall 5 m high supports a cohesionless backfill with $\Phi = 32^\circ$, $\gamma = 19$ kN/m³ with horizontal top, flush with the top of the wall. The backfill carries a surcharge of 15 kN/m². If the wall is moving away from the backfill compute the total pressure on the wall & its point of application. 05**

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Highway and Tunnel Engineering (BTN01503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

Q.2 Solve any two questions. 14

- a) Design speed of highway is 80 kmph. There is a horizontal curve of radius 200 m on a certain locality. Safe limit of transverse coefficient of friction is 0.15.
i) Calculate the super elevation required to maintain this speed.
ii) If the maximum super elevation of 0.07 is not to be exceeded, calculate the maximum allowable speed on this horizontal curve as it is not possible to increase the radius.
- b) What is highway alignment? Discuss different factor affecting the highway Alignment.
- c) What is SSD? Explain PIVE theory in SSD.

Q.3 Solve any two questions. 14

- a) Write a Detailed note on "Significance of CBR & plate load test on sub grade soil".
- b) Define camber. State its importance. Explain different type of camber.
- c) Write a short note on:
i) Geosynthetic material in highway construction
ii) Softening point and ductility test on bitumen

Section – II

Q.4 Solve any two questions.

14

- a) What is the factor to be considered in the design of the flexible pavement? Discuss Significance of each.
- b) Determine the warping stresses at interior, edge and corner of 25 cm thick cement Concrete pavement with transverse joints at 5.0 m interval and longitudinal joints at 3.6 m intervals. The modulus of sub grade reaction K is 6.9 kg/cm^3 and radius of loaded area is 15 cm. Assume temperature differential during day to be 0.6°C per cm slab Thickness (for warping stress at interior and edge) and maximum temperature Differential of 0.4°C per cm slab thickness during the night (for warping stress at the Corner). Assume $e = 10 \times 10^{-6}$ per $^\circ\text{C}$, $E = 3 \times 10^5 \text{ kg/cm}^2$, $\mu = 0.15$. Use Bradbury chart Given in Figure-I.

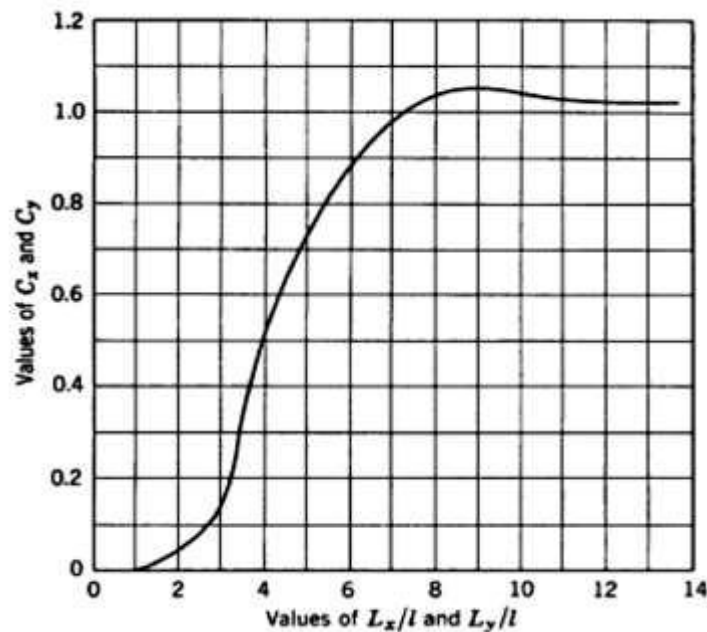


Fig-I

- c) Define Radius of Relative stiffness. Find out radius of relative stiffness of 15 cm thickness cement concrete slab from following data
 $E = 210000 \text{ Kg/cm}^2$, Poisson's ratio = 0.13, $K = 3 \text{ Kg/cm}^2$

Q.5 Solve any two questions.

14

- a) What is highway drainage? How it is achieved? State its effects.
- b) State method of tunnel in soft rock. Explain with sketch any one method in details.
- c) What is tunnel lining? How and why, it is done?

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Highway and Tunnel Engineering (BTN01503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The study on weathering action on road aggregate, which one of the following tests is carried out _____.
 - a) Abrasion test
 - b) Crushing Test
 - c) Impact Test
 - d) Soundness Test
- 2) The thickness of road surface depends upon the _____.
 - a) Type of traffic
 - b) Type of the material
 - c) Intensity of traffic
 - d) All of the above
- 3) Failure in flexible pavement is due to failure of _____.
 - (I) Sub grade
 - (II) Base course
 - (III) Wearing course
 - a) (I) and (II)
 - b) (I) and (III)
 - c) (II) and (III)
 - d) (I), (II) and (III)
- 4) The maximum spacing of contraction joint in rigid pavement is _____.
 - a) 2.5 m
 - b) 3.5 m
 - c) 4.5 m
 - d) 5.5 m
- 5) In which one of the following joint, dowel bars are provided in cement concrete pavement?
 - a) Expansion joint
 - b) Longitudinal joint
 - c) Construction Joint
 - d) None of the above
- 6) In order to maintain desired shape of the tunnel the cross section of the tunnel must be checked at a regular interval of _____.
 - a) 2 m to 3 m
 - b) 4 m to 6 m
 - c) 5 m to 7 m
 - d) 8 m to 15 m
- 7) The process of removal rock protrusions by hammering immediately after the blasting is known as _____.
 - a) Mucking
 - b) Skimming
 - c) Trimming
 - d) Scaling

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Highway and Tunnel Engineering (BTN01503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

Q.2 Solve any two questions. 14

- a) Design speed of highway is 80 kmph. There is a horizontal curve of radius 200 m on a certain locality. Safe limit of transverse coefficient of friction is 0.15.
- Calculate the super elevation required to maintain this speed.
 - If the maximum super elevation of 0.07 is not to be exceeded, calculate the maximum allowable speed on this horizontal curve as it is not possible to increase the radius.
- b) What is highway alignment? Discuss different factor affecting the highway Alignment.
- c) What is SSD? Explain PIVE theory in SSD.

Q.3 Solve any two questions. 14

- a) Write a Detailed note on "Significance of CBR & plate load test on sub grade soil".
- b) Define camber. State its importance. Explain different type of camber.
- c) Write a short note on:
- Geosynthetic material in highway construction
 - Softening point and ductility test on bitumen

Section – II

Q.4 Solve any two questions.

14

- a) What is the factor to be considered in the design of the flexible pavement? Discuss Significance of each.
- b) Determine the warping stresses at interior, edge and corner of 25 cm thick cement Concrete pavement with transverse joints at 5.0 m interval and longitudinal joints at 3.6 m intervals. The modulus of sub grade reaction K is 6.9 kg/cm^3 and radius of loaded area is 15 cm. Assume temperature differential during day to be 0.6°C per cm slab Thickness (for warping stress at interior and edge) and maximum temperature Differential of 0.4°C per cm slab thickness during the night (for warping stress at the Corner). Assume $e = 10 \times 10^{-6}$ per $^\circ\text{C}$, $E = 3 \times 10^5 \text{ kg/cm}^2$, $\mu = 0.15$. Use Bradbury chart Given in Figure-I.

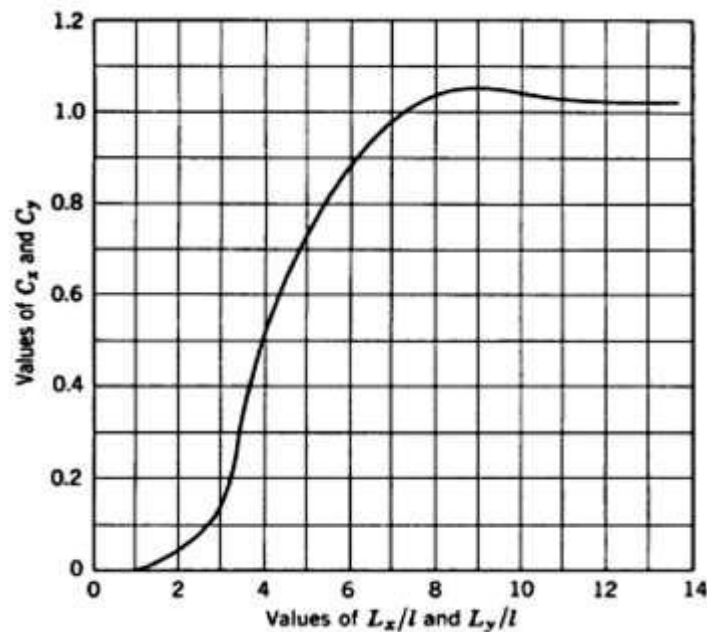


Fig-I

- c) Define Radius of Relative stiffness. Find out radius of relative stiffness of 15 cm thickness cement concrete slab from following data
 $E = 210000 \text{ Kg/cm}^2$, Poisson's ratio = 0.13, $K = 3 \text{ Kg/cm}^2$

Q.5 Solve any two questions.

14

- a) What is highway drainage? How it is achieved? State its effects.
- b) State method of tunnel in soft rock. Explain with sketch any one method in details.
- c) What is tunnel lining? How and why, it is done?

- 9) Which one of the following equipment is used to ensure the pavement unevenness index?
a) Bump Integrator b) Odometer
c) Network survey vehicles d) None of the above
- 10) For the calculation of stopping sight distance the reaction time of the driver may be taken as _____.
a) 2.5 second b) 5 second
c) 7.5 second d) 10 second
- 11) In CBR test the value of CBR is calculated at _____.
a) 2.5 mm penetration
b) 5.0 mm penetration
c) 7.5 mm penetration
d) Both 2.5 mm and 5.0 mm penetration
- 12) The study on weathering action on road aggregate, which one of the following tests is carried out _____.
a) Abrasion test b) Crushing Test
c) Impact Test d) Soundness Test
- 13) The thickness of road surface depends upon the _____.
a) Type of traffic b) Type of the material
c) Intensity of traffic d) All of the above
- 14) Failure in flexible pavement is due to failure of _____.
(I) Sub grade
(II) Base course
(III) Wearing course
a) (I) and (II) b) (I) and (III)
c) (II) and (III) d) (I), (II) and (III)

Seat No.	
----------	--

Set	R
-----	---

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Highway and Tunnel Engineering (BTN01503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

Q.2 Solve any two questions. 14

- a) Design speed of highway is 80 kmph. There is a horizontal curve of radius 200 m on a certain locality. Safe limit of transverse coefficient of friction is 0.15.
- i) Calculate the super elevation required to maintain this speed.
 - ii) If the maximum super elevation of 0.07 is not to be exceeded, calculate the maximum allowable speed on this horizontal curve as it is not possible to increase the radius.
- b) What is highway alignment? Discuss different factor affecting the highway Alignment.
- c) What is SSD? Explain PIVE theory in SSD.

Q.3 Solve any two questions. 14

- a) Write a Detailed note on "Significance of CBR & plate load test on sub grade soil".
- b) Define camber. State its importance. Explain different type of camber.
- c) Write a short note on:
- i) Geosynthetic material in highway construction
 - ii) Softening point and ductility test on bitumen

Section – II

Q.4 Solve any two questions.

14

- a) What is the factor to be considered in the design of the flexible pavement? Discuss Significance of each.
- b) Determine the warping stresses at interior, edge and corner of 25 cm thick cement Concrete pavement with transverse joints at 5.0 m interval and longitudinal joints at 3.6 m intervals. The modulus of sub grade reaction K is 6.9 kg/cm^3 and radius of loaded area is 15 cm. Assume temperature differential during day to be 0.6°C per cm slab Thickness (for warping stress at interior and edge) and maximum temperature Differential of 0.4°C per cm slab thickness during the night (for warping stress at the Corner). Assume $e = 10 \times 10^{-6}$ per $^\circ\text{C}$, $E = 3 \times 10^5 \text{ kg/cm}^2$, $\mu = 0.15$. Use Bradbury chart Given in Figure-I.

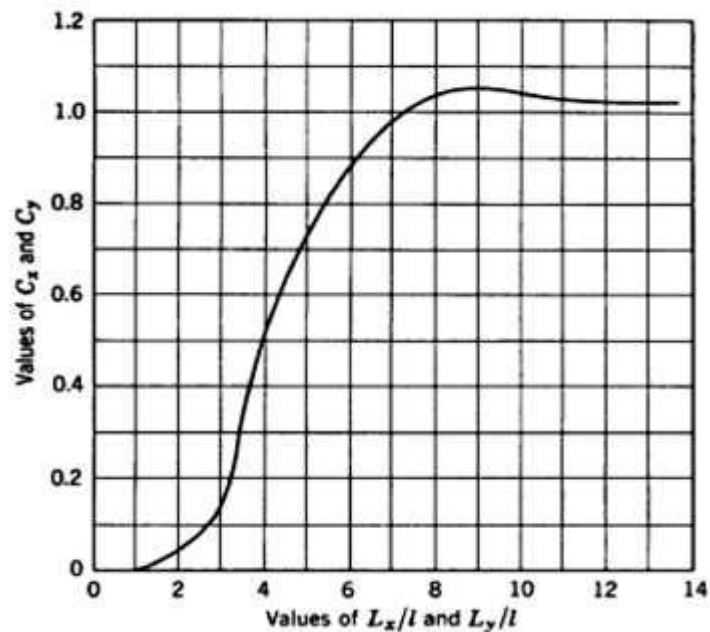


Fig-I

- c) Define Radius of Relative stiffness. Find out radius of relative stiffness of 15 cm thickness cement concrete slab from following data
 $E = 210000 \text{ Kg/cm}^2$, Poisson's ratio = 0.13, $K = 3 \text{ Kg/cm}^2$

Q.5 Solve any two questions.

14

- a) What is highway drainage? How it is achieved? State its effects.
- b) State method of tunnel in soft rock. Explain with sketch any one method in details.
- c) What is tunnel lining? How and why, it is done?

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Highway and Tunnel Engineering (BTN01503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) For the calculation of stopping sight distance the reaction time of the driver may be taken as _____.
 - a) 2.5 second
 - b) 5 second
 - c) 7.5 second
 - d) 10 second
- 2) In CBR test the value of CBR is calculated at _____.
 - a) 2.5 mm penetration
 - b) 5.0 mm penetration
 - c) 7.5 mm penetration
 - d) Both 2.5 mm and 5.0 mm penetration
- 3) The study on weathering action on road aggregate, which one of the following tests is carried out _____.
 - a) Abrasion test
 - b) Crushing Test
 - c) Impact Test
 - d) Soundness Test
- 4) The thickness of road surface depends upon the _____.
 - a) Type of traffic
 - b) Type of the material
 - c) Intensity of traffic
 - d) All of the above
- 5) Failure in flexible pavement is due to failure of _____.
 - (I) Sub grade
 - (II) Base course
 - (III) Wearing course
 - a) (I) and (II)
 - b) (I) and (III)
 - c) (II) and (III)
 - d) (I), (II) and (III)
- 6) The maximum spacing of contraction joint in rigid pavement is _____.
 - a) 2.5 m
 - b) 3.5 m
 - c) 4.5 m
 - d) 5.5 m
- 7) In which one of the following joint, dowel bars are provided in cement concrete pavement?
 - a) Expansion joint
 - b) Longitudinal joint
 - c) Construction Joint
 - d) None of the above

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Highway and Tunnel Engineering (BTN01503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

Q.2 Solve any two questions. 14

- a) Design speed of highway is 80 kmph. There is a horizontal curve of radius 200 m on a certain locality. Safe limit of transverse coefficient of friction is 0.15.
- Calculate the super elevation required to maintain this speed.
 - If the maximum super elevation of 0.07 is not to be exceeded, calculate the maximum allowable speed on this horizontal curve as it is not possible to increase the radius.
- b) What is highway alignment? Discuss different factor affecting the highway Alignment.
- c) What is SSD? Explain PIVE theory in SSD.

Q.3 Solve any two questions. 14

- a) Write a Detailed note on "Significance of CBR & plate load test on sub grade soil".
- b) Define camber. State its importance. Explain different type of camber.
- c) Write a short note on:
- Geosynthetic material in highway construction
 - Softening point and ductility test on bitumen

Section – II

Q.4 Solve any two questions.

14

- a) What is the factor to be considered in the design of the flexible pavement? Discuss Significance of each.
- b) Determine the warping stresses at interior, edge and corner of 25 cm thick cement Concrete pavement with transverse joints at 5.0 m interval and longitudinal joints at 3.6 m intervals. The modulus of sub grade reaction K is 6.9 kg/cm^3 and radius of loaded area is 15 cm. Assume temperature differential during day to be 0.6°C per cm slab Thickness (for warping stress at interior and edge) and maximum temperature Differential of 0.4°C per cm slab thickness during the night (for warping stress at the Corner). Assume $e = 10 \times 10^{-6}$ per $^\circ\text{C}$, $E = 3 \times 10^5 \text{ kg/cm}^2$, $\mu = 0.15$. Use Bradbury chart Given in Figure-I.

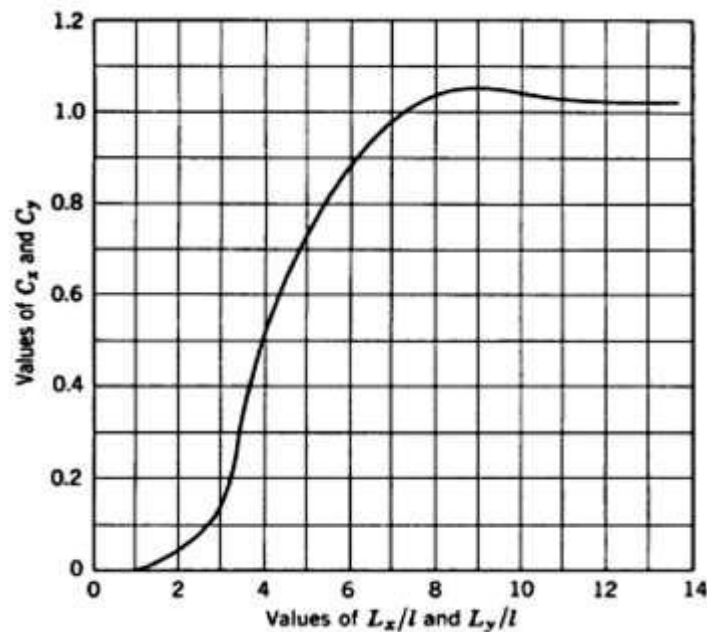


Fig-I

- c) Define Radius of Relative stiffness. Find out radius of relative stiffness of 15 cm thickness cement concrete slab from following data
 $E = 210000 \text{ Kg/cm}^2$, Poisson's ratio = 0.13, $K = 3 \text{ Kg/cm}^2$

Q.5 Solve any two questions.

14

- a) What is highway drainage? How it is achieved? State its effects.
- b) State method of tunnel in soft rock. Explain with sketch any one method in details.
- c) What is tunnel lining? How and why, it is done?

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ /Objective type question paper

14

- 1) The constant value attained by the infiltration capacity, after the soil profile gets saturated, depends on _____.
a) permeability of soil b) infiltration rate
c) Rainfall intensity d) None of them
- 2) A line joining places of equal rainfall, is called a _____.
a) hyetograph b) isobar
c) isotherm d) isohyet
- 3) The S-curve is used _____.
a) to develop synthetic unit hydrograph
b) to derive unit hydrograph of a complex storm
c) to convert the unit hydrograph of any given duration into a unit hydrograph of any other desired duration
d) to estimate the peak flow of a basin from the given storm
- 4) Fern leaf catchment, when compared with fan shaped catchments, will have _____.
a) longer streams
b) shorter streams
c) almost equally long streams
d) longer or shorter streams, depending upon the particular catchment
- 5) In mean section method _____.
a) the elemental strip is taken between two verticals
b) mean depth is taken as the average of the depths in the two verticals
c) width of the strip is distance b between the two verticals
d) all of these
- 6) The flood discharges for a number of years have been observed at a certain weir. The peak flood values for each successive years have been listed for analysis, from this available data. The series so formed is called _____.
a) annual series b) complete series
c) partial duration series d) extreme value series

- 7) The line joining the static water levels in several wells, excavated through a confined aquifer, is known as the: _____.
- a) cone of depression b) piezometric surface
c) perched water table d) hypsometric curve
- 8) A stream which contributes runoff to groundwater is known as _____.
a) influent stream b) effluent stream
c) perennial stream d) Ephemeral stream
- 9) Par-Tapi-Narmada river link is part of _____.
a) Himalayan component b) Peninsular
c) Both a and b d) none of these
- 10) The method of growing crops on ridges, running on the sides of water ditches, is known as _____.
a) flood irrigation b) furrow irrigation
c) check-irrigation d) none-of-them
- 11) An irrigation project is classified as a major project, when the cultural command involved in the project, is more than _____.
a) 2,000 hectares b) 5,000 hectares
c) 10,000 hectares d) none of the above
- 12) If the intensity of irrigation for Kharif is 45% and that for Rabi is 60%; then the annual intensity of irrigation, is _____.
a) 60% b) 100%
c) 105% d) none of them
- 13) The moisture held by a well-drained soil against gravity drainage, by the force of surface tension between the soil grains and water drops; is called _____.
a) field capacity water b) hygroscopic water
c) capillary water d) water of adhesion
- 14) Preconstruction measure for control of sedimentation in reservoir includes _____.
a) Construction of check dams
b) Erosion control and soil conservation
c) Mechanical stirring of sediments
d) Removal of post flood water

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Enlist different methods of measurement of rainfall and explain any one with neat sketch with its advantages and disadvantages. **04**
b) The data pertaining to a stream gauging operation at gauging site are given below. The rating equation of current meter is $V = 0.51 N_s + 0.03$ m/s. where N_s = revolutions per second. Calculate the discharge in the stream. **06**

Distance from left water edge (m)	0	2	3	5	7	9	11	12
Depth (m)	0	1.1	2.0	2.5	2.0	1.7	1.0	0
Revolutions of current meter kept at 0.6 depth	0	39	58	112	90	45	30	0
Duration of observation (s)	0	100	100	150	150	100	100	0

- Q.3** a) Explain different parameters affecting the site selection for stream gauging. **04**
b) A Raingauge station D was in operative for part of a month during which storm occurs. The storm rainfall recorded in the three surrounding stations A, B and C were 8.5, 6.7 and 9 cm respectively, if the annual average rainfall for the stations are 75, 84, 70 and 90 cm respectively. Estimate the storm rainfall at station. **05**
- Q.4** a) Enlist the assumptions made in the steady flow condition to a well penetrating in confined aquifers and derive expression of it. **04**
b) The storm over a catchment 50 km^2 was having the following intensity 35 mm/hr. for 1 hr., 75 mm/hr. for 2 hr., 32 mm/hr. for 1 hr., The infiltration rate of the catchment area is as follows. 25% area $\phi = 10 \text{ mm/hr.}$, 50% area $\phi = 12 \text{ mm/hr.}$, and Remaining area is impervious. Find the runoff. **05**

- Q.5 a)** Define Unit Hydrograph and explain the concept of S - curve hydrograph with a neat sketch. **04**
- b)** An unconfined aquifer has a thickness 30 m. A completely 20 cm diameter well in this aquifer is pumped at a rate of 35 lit/s. the drawdown measured in two observation wells located at distances of 10 m and 100 m from the well are 7.5 m and 0.5 m respectively. Determine the average hydraulic conductivity of the aquifer. At what distance from the well the drawdown is insignificant? **05**

Section – II

- Q.6 a)** Explain the problems in water resources developments in country and Maharashtra state. **05**
- b)** Discuss the suitability and construction features of Kolhapur type weir for irrigation. **05**
- Q.7 a)** Explain percolation tank with neat sketch. **03**
- b)** Table below gives a necessary data about the crops, their duty and area under each crop, commanded by a canal, taking off from a storage reservoir. Taking a time factor for a canal to be 10/20. Calculate the discharge required at the head of the canal. Also determine design discharge, if capacity factor of a canal is 0.9. **06**

Crop	Base Period	Area (hectares)	Duty at the head of canal (ha/cumec)
Sugarcane (yearly)	320	800	580
Overlap of sugarcane in hot weather	90	140	580
Wheat (Rabbi)	120	700	1600
Bajara (Kharif)	120	600	2000
Vegetable (Hot weather)	120	360	600

- Q.8 a)** Define the terms field capacity, wilting point and optimum water content. **03**
- b)** Enlist and explain the different erosion control measures which are effective in preventing and delaying sediment deposition in reservoirs. **06**
- Q.9 a)** Explain the benefits of use of Remote Sensing and Geographic Information Systems in Water Shed management. **03**
- b)** After how many days will you supply water to soil in order to ensure irrigation of given crop if, field capacity of soil is 26%, permanent wilting point 14%, dry density of soil 1.3 g/cc. assume daily consumptive use of water for the given crop 10 mm and effective root zone depth 70 cm and readily available moisture to crop is 80% of available moisture. **06**

Seat No.	
-------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ /Objective type question paper

14

- 1) A stream which contributes runoff to groundwater is known as _____.
a) influent stream b) effluent stream
c) perennial stream d) Ephemeral stream
- 2) Par-Tapi-Narmada river link is part of _____.
a) Himalayan component b) Peninsular
c) Both a and b d) none of these
- 3) The method of growing crops on ridges, running on the sides of water ditches, is known as _____.
a) flood irrigation b) furrow irrigation
c) check-irrigation d) none-of-them
- 4) An irrigation project is classified as a major project, when the cultural command involved in the project, is more than _____.
a) 2,000 hectares b) 5,000 hectares
c) 10,000 hectares d) none of the above
- 5) If the intensity of irrigation for Kharif is 45% and that for Rabi is 60%; then the annual intensity of irrigation, is _____.
a) 60% b) 100%
c) 105% d) none of them
- 6) The moisture held by a well-drained soil against gravity drainage, by the force of surface tension between the soil grains and water drops; is called _____.
a) field capacity water b) hygroscopic water
c) capillary water d) water of adhesion
- 7) Preconstruction measure for control of sedimentation in reservoir includes _____.
a) Construction of check dams
b) Erosion control and soil conservation
c) Mechanical stirring of sediments
d) Removal of post flood water

- 8) The constant value attained by the infiltration capacity, after the soil profile gets saturated, depends on _____.
- a) permeability of soil b) infiltration rate
c) Rainfall intensity d) None of them
- 9) A line joining places of equal rainfall, is called a _____.
- a) hyetograph b) isobar
c) isotherm d) isohyet
- 10) The S-curve is used _____.
- a) to develop synthetic unit hydrograph
b) to derive unit hydrograph of a complex storm
c) to convert the unit hydrograph of any given duration into a unit hydrograph of any other desired duration
d) to estimate the peak flow of a basin from the given storm
- 11) Fern leaf catchment, when compared with fan shaped catchments, will have _____.
- a) longer streams
b) shorter streams
c) almost equally long streams
d) longer or shorter streams, depending upon the particular catchment
- 12) In mean section method _____.
- a) the elemental strip is taken between two verticals
b) mean depth is taken as the average of the depths in the two verticals
c) width of the strip is distance b between the two verticals
d) all of these
- 13) The flood discharges for a number of years have been observed at a certain weir. The peak flood values for each successive years have been listed for analysis, from this available data. The series so formed is called _____.
- a) annual series b) complete series
c) partial duration series d) extreme value series
- 14) The line joining the static water levels in several wells, excavated through a confined aquifer, is known as the: _____.
- a) cone of depression b) piezometric surface
c) perched water table d) hypsometric curve

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Enlist different methods of measurement of rainfall and explain any one with neat sketch with its advantages and disadvantages. **04**
b) The data pertaining to a stream gauging operation at gauging site are given below. The rating equation of current meter is $V = 0.51 N_s + 0.03$ m/s. where N_s = revolutions per second. Calculate the discharge in the stream. **06**

Distance from left water edge (m)	0	2	3	5	7	9	11	12
Depth (m)	0	1.1	2.0	2.5	2.0	1.7	1.0	0
Revolutions of current meter kept at 0.6 depth	0	39	58	112	90	45	30	0
Duration of observation (s)	0	100	100	150	150	100	100	0

- Q.3** a) Explain different parameters affecting the site selection for stream gauging. **04**
b) A Rain gauge station D was in operative for part of a month during which storm occurs. The storm rainfall recorded in the three surrounding stations A, B and C were 8.5, 6.7 and 9 cm respectively, if the annual average rainfall for the stations are 75, 84, 70 and 90 cm respectively. Estimate the storm rainfall at station. **05**
- Q.4** a) Enlist the assumptions made in the steady flow condition to a well penetrating in confined aquifers and derive expression of it. **04**
b) The storm over a catchment 50 km^2 was having the following intensity 35 mm/hr. for 1 hr., 75 mm/hr. for 2 hr., 32 mm/hr. for 1 hr., The infiltration rate of the catchment area is as follows. 25% area $\phi = 10 \text{ mm/hr.}$, 50% area $\phi = 12 \text{ mm/hr.}$, and Remaining area is impervious. Find the runoff. **05**

- Q.5 a)** Define Unit Hydrograph and explain the concept of S - curve hydrograph with a neat sketch. **04**
- b)** An unconfined aquifer has a thickness 30 m. A completely 20 cm diameter well in this aquifer is pumped at a rate of 35 lit/s. the drawdown measured in two observation wells located at distances of 10 m and 100 m from the well are 7.5 m and 0.5 m respectively. Determine the average hydraulic conductivity of the aquifer. At what distance from the well the drawdown is insignificant? **05**

Section – II

- Q.6 a)** Explain the problems in water resources developments in country and Maharashtra state. **05**
- b)** Discuss the suitability and construction features of Kolhapur type weir for irrigation. **05**
- Q.7 a)** Explain percolation tank with neat sketch. **03**
- b)** Table below gives a necessary data about the crops, their duty and area under each crop, commanded by a canal, taking off from a storage reservoir. Taking a time factor for a canal to be 10/20. Calculate the discharge required at the head of the canal. Also determine design discharge, if capacity factor of a canal is 0.9. **06**

Crop	Base Period	Area (hectares)	Duty at the head of canal (ha/cumec)
Sugarcane (yearly)	320	800	580
Overlap of sugarcane in hot weather	90	140	580
Wheat (Rabbi)	120	700	1600
Bajara (Kharif)	120	600	2000
Vegetable (Hot weather)	120	360	600

- Q.8 a)** Define the terms field capacity, wilting point and optimum water content. **03**
- b)** Enlist and explain the different erosion control measures which are effective in preventing and delaying sediment deposition in reservoirs. **06**
- Q.9 a)** Explain the benefits of use of Remote Sensing and Geographic Information Systems in Water Shed management. **03**
- b)** After how many days will you supply water to soil in order to ensure irrigation of given crop if, field capacity of soil is 26%, permanent wilting point 14%, dry density of soil 1.3 g/cc. assume daily consumptive use of water for the given crop 10 mm and effective root zone depth 70 cm and readily available moisture to crop is 80% of available moisture. **06**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ /Objective type question paper

14

- 1) An irrigation project is classified as a major project, when the cultural command involved in the project, is more than _____.
 - a) 2,000 hectares
 - b) 5,000 hectares
 - c) 10,000 hectares
 - d) none of the above
- 2) If the intensity of irrigation for Kharif is 45% and that for Rabi is 60%; then the annual intensity of irrigation, is _____.
 - a) 60%
 - b) 100%
 - c) 105%
 - d) none of them
- 3) The moisture held by a well-drained soil against gravity drainage, by the force of surface tension between the soil grains and water drops; is called _____.
 - a) field capacity water
 - b) hygroscopic water
 - c) capillary water
 - d) water of adhesion
- 4) Preconstruction measure for control of sedimentation in reservoir includes _____.
 - a) Construction of check dams
 - b) Erosion control and soil conservation
 - c) Mechanical stirring of sediments
 - d) Removal of post flood water
- 5) The constant value attained by the infiltration capacity, after the soil profile gets saturated, depends on _____.
 - a) permeability of soil
 - b) infiltration rate
 - c) Rainfall intensity
 - d) None of them
- 6) A line joining places of equal rainfall, is called a _____.
 - a) hyetograph
 - b) isobar
 - c) isotherm
 - d) isohyet
- 7) The S-curve is used _____.
 - a) to develop synthetic unit hydrograph
 - b) to derive unit hydrograph of a complex storm
 - c) to convert the unit hydrograph of any given duration into a unit hydrograph of any other desired duration
 - d) to estimate the peak flow of a basin from the given storm

- 8) Fern leaf catchment, when compared with fan shaped catchments, will have _____.
- a) longer streams
 - b) shorter streams
 - c) almost equally long streams
 - d) longer or shorter streams, depending upon the particular catchment
- 9) In mean section method _____.
- a) the elemental strip is taken between two verticals
 - b) mean depth is taken as the average of the depths in the two verticals
 - c) width of the strip is distance b between the two verticals
 - d) all of these
- 10) The flood discharges for a number of years have been observed at a certain weir. The peak flood values for each successive years have been listed for analysis, from this available data. The series so formed is called _____.
- a) annual series
 - b) complete series
 - c) partial duration series
 - d) extreme value series
- 11) The line joining the static water levels in several wells, excavated through a confined aquifer, is known as the: _____.
- a) cone of depression
 - b) piezometric surface
 - c) perched water table
 - d) hypsometric curve
- 12) A stream which contributes runoff to groundwater is known as _____.
- a) influent stream
 - b) effluent stream
 - c) perennial stream
 - d) Ephemeral stream
- 13) Par-Tapi-Narmada river link is part of _____.
- a) Himalayan component
 - b) Peninsular
 - c) Both a and b
 - d) none of these
- 14) The method of growing crops on ridges, running on the sides of water ditches, is known as _____.
- a) flood irrigation
 - b) furrow irrigation
 - c) check-irrigation
 - d) none-of-them

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Enlist different methods of measurement of rainfall and explain any one with neat sketch with its advantages and disadvantages. **04**
b) The data pertaining to a stream gauging operation at gauging site are given below. The rating equation of current meter is $V = 0.51 N_s + 0.03$ m/s. where N_s = revolutions per second. Calculate the discharge in the stream. **06**

Distance from left water edge (m)	0	2	3	5	7	9	11	12
Depth (m)	0	1.1	2.0	2.5	2.0	1.7	1.0	0
Revolutions of current meter kept at 0.6 depth	0	39	58	112	90	45	30	0
Duration of observation (s)	0	100	100	150	150	100	100	0

- Q.3** a) Explain different parameters affecting the site selection for stream gauging. **04**
b) A Raingauge station D was in operative for part of a month during which storm occurs. The storm rainfall recorded in the three surrounding stations A, B and C were 8.5, 6.7 and 9 cm respectively, if the annual average rainfall for the stations are 75, 84, 70 and 90 cm respectively. Estimate the storm rainfall at station. **05**
- Q.4** a) Enlist the assumptions made in the steady flow condition to a well penetrating in confined aquifers and derive expression of it. **04**
b) The storm over a catchment 50 km^2 was having the following intensity **05**
35 mm/hr. for 1 hr., 75 mm/hr. for 2 hr., 32 mm/hr. for 1 hr.,
The infiltration rate of the catchment area is as follows.
25% area $\phi = 10 \text{ mm/hr.}$, 50% area $\phi = 12 \text{ mm/hr.}$, and Remaining area is impervious. Find the runoff.

- Q.5 a)** Define Unit Hydrograph and explain the concept of S - curve hydrograph with a neat sketch. **04**
- b)** An unconfined aquifer has a thickness 30 m. A completely 20 cm diameter well in this aquifer is pumped at a rate of 35 lit/s. the drawdown measured in two observation wells located at distances of 10 m and 100 m from the well are 7.5 m and 0.5 m respectively. Determine the average hydraulic conductivity of the aquifer. At what distance from the well the drawdown is insignificant? **05**

Section – II

- Q.6 a)** Explain the problems in water resources developments in country and Maharashtra state. **05**
- b)** Discuss the suitability and construction features of Kolhapur type weir for irrigation. **05**
- Q.7 a)** Explain percolation tank with neat sketch. **03**
- b)** Table below gives a necessary data about the crops, their duty and area under each crop, commanded by a canal, taking off from a storage reservoir. Taking a time factor for a canal to be 10/20. Calculate the discharge required at the head of the canal. Also determine design discharge, if capacity factor of a canal is 0.9. **06**

Crop	Base Period	Area (hectares)	Duty at the head of canal (ha/cumec)
Sugarcane (yearly)	320	800	580
Overlap of sugarcane in hot weather	90	140	580
Wheat (Rabbi)	120	700	1600
Bajara (Kharif)	120	600	2000
Vegetable (Hot weather)	120	360	600

- Q.8 a)** Define the terms field capacity, wilting point and optimum water content. **03**
- b)** Enlist and explain the different erosion control measures which are effective in preventing and delaying sediment deposition in reservoirs. **06**
- Q.9 a)** Explain the benefits of use of Remote Sensing and Geographic Information Systems in Water Shed management. **03**
- b)** After how many days will you supply water to soil in order to ensure irrigation of given crop if, field capacity of soil is 26%, permanent wilting point 14%, dry density of soil 1.3 g/cc. assume daily consumptive use of water for the given crop 10 mm and effective root zone depth 70 cm and readily available moisture to crop is 80% of available moisture. **06**

- 8) The moisture held by a well-drained soil against gravity drainage, by the force of surface tension between the soil grains and water drops; is called _____.
a) field capacity water b) hygroscopic water
c) capillary water d) water of adhesion
- 9) Preconstruction measure for control of sedimentation in reservoir includes _____.
a) Construction of check dams
b) Erosion control and soil conservation
c) Mechanical stirring of sediments
d) Removal of post flood water
- 10) The constant value attained by the infiltration capacity, after the soil profile gets saturated, depends on _____.
a) permeability of soil b) infiltration rate
c) Rainfall intensity d) None of them
- 11) A line joining places of equal rainfall, is called a _____.
a) hyetograph b) isobar
c) isotherm d) isohyet
- 12) The S-curve is used _____.
a) to develop synthetic unit hydrograph
b) to derive unit hydrograph of a complex storm
c) to convert the unit hydrograph of any given duration into a unit hydrograph of any other desired duration
d) to estimate the peak flow of a basin from the given storm
- 13) Fern leaf catchment, when compared with fan shaped catchments, will have _____.
a) longer streams
b) shorter streams
c) almost equally long streams
d) longer or shorter streams, depending upon the particular catchment
- 14) In mean section method _____.
a) the elemental strip is taken between two verticals
b) mean depth is taken as the average of the depths in the two verticals
c) width of the strip is distance b between the two verticals
d) all of these

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydrology and Water Resources Engineering (BTN01504)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Enlist different methods of measurement of rainfall and explain any one with neat sketch with its advantages and disadvantages. **04**
b) The data pertaining to a stream gauging operation at gauging site are given below. The rating equation of current meter is $V = 0.51 N_s + 0.03$ m/s. where N_s = revolutions per second. Calculate the discharge in the stream. **06**

Distance from left water edge (m)	0	2	3	5	7	9	11	12
Depth (m)	0	1.1	2.0	2.5	2.0	1.7	1.0	0
Revolutions of current meter kept at 0.6 depth	0	39	58	112	90	45	30	0
Duration of observation (s)	0	100	100	150	150	100	100	0

- Q.3** a) Explain different parameters affecting the site selection for stream gauging. **04**
b) A Rain gauge station D was in operative for part of a month during which storm occurs. The storm rainfall recorded in the three surrounding stations A, B and C were 8.5, 6.7 and 9 cm respectively, if the annual average rainfall for the stations are 75, 84, 70 and 90 cm respectively. Estimate the storm rainfall at station. **05**
- Q.4** a) Enlist the assumptions made in the steady flow condition to a well penetrating in confined aquifers and derive expression of it. **04**
b) The storm over a catchment 50 km^2 was having the following intensity 35 mm/hr. for 1 hr., 75 mm/hr. for 2 hr., 32 mm/hr. for 1 hr., The infiltration rate of the catchment area is as follows. 25% area $\phi = 10 \text{ mm/hr.}$, 50% area $\phi = 12 \text{ mm/hr.}$, and Remaining area is impervious. Find the runoff. **05**

- Q.5 a)** Define Unit Hydrograph and explain the concept of S - curve hydrograph with a neat sketch. **04**
- b)** An unconfined aquifer has a thickness 30 m. A completely 20 cm diameter well in this aquifer is pumped at a rate of 35 lit/s. the drawdown measured in two observation wells located at distances of 10 m and 100 m from the well are 7.5 m and 0.5 m respectively. Determine the average hydraulic conductivity of the aquifer. At what distance from the well the drawdown is insignificant? **05**

Section – II

- Q.6 a)** Explain the problems in water resources developments in country and Maharashtra state. **05**
- b)** Discuss the suitability and construction features of Kolhapur type weir for irrigation. **05**
- Q.7 a)** Explain percolation tank with neat sketch. **03**
- b)** Table below gives a necessary data about the crops, their duty and area under each crop, commanded by a canal, taking off from a storage reservoir. Taking a time factor for a canal to be 10/20. Calculate the discharge required at the head of the canal. Also determine design discharge, if capacity factor of a canal is 0.9. **06**

Crop	Base Period	Area (hectares)	Duty at the head of canal (ha/cumec)
Sugarcane (yearly)	320	800	580
Overlap of sugarcane in hot weather	90	140	580
Wheat (Rabbi)	120	700	1600
Bajara (Kharif)	120	600	2000
Vegetable (Hot weather)	120	360	600

- Q.8 a)** Define the terms field capacity, wilting point and optimum water content. **03**
- b)** Enlist and explain the different erosion control measures which are effective in preventing and delaying sediment deposition in reservoirs. **06**
- Q.9 a)** Explain the benefits of use of Remote Sensing and Geographic Information Systems in Water Shed management. **03**
- b)** After how many days will you supply water to soil in order to ensure irrigation of given crop if, field capacity of soil is 26%, permanent wilting point 14%, dry density of soil 1.3 g/cc. assume daily consumptive use of water for the given crop 10 mm and effective root zone depth 70 cm and readily available moisture to crop is 80% of available moisture. **06**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) While solving MCQ, IS 456-2000 is not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 Choose the correct alternatives from the given options. 14**
- 1) As per IS 456, the reinforcement in column should not be less than _____. **01**
 - a) 0.5% and not more than 5% of cross-sectional area
 - b) 0.6% and not more than 6% of cross-sectional area
 - c) 0.7% and not more than 7% of cross-sectional area
 - d) 0.8% and not more than 8% of cross-sectional area
 - 2) A part of the slab may be considered as the flange of the T beam if _____. **01**
 - a) Flange has adequate reinforcement transverse to beam
 - b) It is built integrally with the beam
 - c) It is effectively bonded together with the beam
 - d) All the above
 - 3) An R.C.C. beam without shear reinforcement may develop cracks in its bottom inclined roughly to the horizontal at _____. **01**
 - a) 25 degree
 - b) 35 degree
 - c) 45 degree
 - d) 55 degree
 - 4) The effective cover of beam depends on _____. **01**
 - a) Diameter of main reinforcement
 - b) Grade of reinforcing steel
 - c) Width of beam
 - d) All of these
 - 5) In a simply supported slab, alternate bars are curtailed at _____. **01**
 - a) 1/4th of the span
 - b) 1/5th of the span
 - c) 1/6th of the span
 - d) 1/7th of the span
 - 6) A short column of size 250mm×350mm is provided with longitudinal reinforcement of diameter 20mm and the diameter of tie is 8mm. According to IS 456:2000, the maximum spacing between two ties is _____. **01**
 - a) 200 mm
 - b) 350 mm
 - c) 300 mm
 - d) 250 mm

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question No. 2 and 6 is compulsory.
 - 2) Solve any two questions from the remaining questions of each section.
 - 3) Use of IS 456:2000 and non-programmable calculator is allowed.
 - 4) Figure to the right indicates full marks.
 - 5) Assume additional suitable data if necessary and state it clearly.
 - 6) Draw neat sketch of reinforcement details.

Section – I

- Q.2** A roof of clear dimensions 4.5 m × 6m supported on walls of 230mm thickness, with corners are held down. All the four edges of the slab are discontinuous. Design the slab, if the beam is carrying a live load of 4 kN/m². Use M 20 & Fe 415 steel. **10**
- Q.3** Design the simply supported rectangular beam of 250 mm width to carry live load of 26 kN/m. The clear span is 4 m and bearing at each end is 230 mm. Use M20, Fe 500. **09**
- Q.4** A doubly reinforced beam 250 mm × 500 mm is provided with 3 bars of 16 mm diameter as compression steel with an effective cover of 50 mm and 4 bars of 20 mm diameter as tensile steel. Determine ultimate moment if M20 and Fe 500 grade steel. **09**
- Q.5** Calculate the ultimate flexural strength of T beam section having following sectional properties: **09**
 Width of flange = 1200 mm
 Depth of flange = 120 mm
 Width of rib = 300 mm
 Effective depth = 600 mm
 Area of tensile steel = 8 bars of 25 mm diameter
 Materials: M20, Fe 415

Section – II

- Q.6** Design a continuous reinforced concrete beam of rectangular section to support a dead load of 10 kN/m and live load of 12 kN/m over the 3 spans of effective length 6 m which are simply supported at the end. Use M 20 concrete and Fe 415 steel. **10**
- Q.7** Determine reinforcement required for a beam size 300 mm × 600 mm subjected to factored bending moment of 80 kNm, factored shear force 70 kN and factored torsional moment of 40 kNm. Use M20 concrete and Fe500 steel. **09**

- Q.8** A short column 400 mm × 400 mm is provided with 3-16 mm diameter. The length of column is 2.25 m. It is effectively held in position at both the ends & restrained against rotation at other end. Find ultimate load of the column. Use M20 & Fe 415. **09**
- Q.9** Design a circular column subjected to a working load of 1600 kN. The unsupported length of column is 3.5 m which is effectively held in position at both ends but not restrained against rotation. Use M25 concrete and Fe 415 steel. **09**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) While solving MCQ, IS 456-2000 is not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 Choose the correct alternatives from the given options.** **14**
- 1) In a simply supported slab, alternate bars are curtailed at _____. **01**
 - a) $1/4^{\text{th}}$ of the span
 - b) $1/5^{\text{th}}$ of the span
 - c) $1/6^{\text{th}}$ of the span
 - d) $1/7^{\text{th}}$ of the span
 - 2) A short column of size 250mm×350mm is provided with longitudinal reinforcement of diameter 20mm and the diameter of tie is 8mm. According to IS 456:2000, the maximum spacing between two ties is _____. **01**
 - a) 200 mm
 - b) 350 mm
 - c) 300 mm
 - d) 250 mm
 - 3) The length of torsion reinforcement in two way slab is provided as _____. **01**
 - a) Shorter span/4
 - b) Shorter span/5
 - c) Shorter span/8
 - d) Shorter span/10
 - 4) An RCC beam of 200mm×300mm effective is subjected to factored shear force 30 kN. The maximum nominal shear stress is _____. **01**
 - a) 0.5 N/mm^2
 - b) 0.6 N/mm^2
 - c) 0.7 N/mm^2
 - d) 0.8 N/mm^2
 - 5) As per IS 456, the reinforcement in column should not be less than _____. **01**
 - a) 0.5% and not more than 5% of cross-sectional area
 - b) 0.6% and not more than 6% of cross-sectional area
 - c) 0.7% and not more than 7% of cross-sectional area
 - d) 0.8% and not more than 8% of cross-sectional area
 - 6) A part of the slab may be considered as the flange of the T beam if _____. **01**
 - a) Flange has adequate reinforcement transverse to beam
 - b) It is built integrally with the beam
 - c) It is effectively bonded together with the beam
 - d) All the above
 - 7) An R.C.C. beam without shear reinforcement may develop cracks in its bottom inclined roughly to the horizontal at _____. **01**
 - a) 25 degree
 - b) 35 degree
 - c) 45 degree
 - d) 55 degree

- 8) The effective cover of beam depends on _____. 01
a) Diameter of main reinforcement
b) Grade of reinforcing steel
c) Width of beam
d) All of these
- 9) A flanged beam is having the following dimension: width of flange, $b_f = 1000\text{mm}$ depth of flange, $D_f = 125\text{mm}$, width of web, $b_w = 250\text{ mm}$ and overall depth of beam, $D = 250\text{ mm}$. The concrete grade is M20 and the grade of reinforcing steel is Fe415. The clear cover is 25 mm. The moment of resistance the section is _____. 02
a) 95.891 kNm b) 127.854 kNm
c) 159.818 kNm d) 191.781 kNm
- 10) A concrete column is reinforced with 4 bars of 20mm diameter. Determine the design axial load carrying capacity of a column of size 400mm × 400mm. Consider M20 grade concrete, Fe415 grade and column is perfectly axially loaded. 02
a) 2420 kN b) 2020 kN
c) 1610 kN d) 1210 kN
- 11) A rectangular section 300mm×700mm overall dimension. 30mm effective cover to compression and tension steel, is reinforced with 2 bars of 20mm and 4 bars of 20mm diameter respectively. Grade Fe415 and M25. Then the depth of neutral axis will be _____. 02
a) 105 mm b) 83 mm
c) 74 mm d) 93 mm

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question No. 2 and 6 is compulsory.
 - 2) Solve any two questions from the remaining questions of each section.
 - 3) Use of IS 456:2000 and non-programmable calculator is allowed.
 - 4) Figure to the right indicates full marks.
 - 5) Assume additional suitable data if necessary and state it clearly.
 - 6) Draw neat sketch of reinforcement details.

Section – I

- Q.2** A roof of clear dimensions 4.5 m × 6m supported on walls of 230mm thickness, with corners are held down. All the four edges of the slab are discontinuous. Design the slab, if the beam is carrying a live load of 4 kN/m². Use M 20 & Fe 415 steel. **10**
- Q.3** Design the simply supported rectangular beam of 250 mm width to carry live load of 26 kN/m. The clear span is 4 m and bearing at each end is 230 mm. Use M20, Fe 500. **09**
- Q.4** A doubly reinforced beam 250 mm × 500 mm is provided with 3 bars of 16 mm diameter as compression steel with an effective cover of 50 mm and 4 bars of 20 mm diameter as tensile steel. Determine ultimate moment if M20 and Fe 500 grade steel. **09**
- Q.5** Calculate the ultimate flexural strength of T beam section having following sectional properties: **09**
 Width of flange = 1200 mm
 Depth of flange = 120 mm
 Width of rib = 300 mm
 Effective depth = 600 mm
 Area of tensile steel = 8 bars of 25 mm diameter
 Materials: M20, Fe 415

Section – II

- Q.6** Design a continuous reinforced concrete beam of rectangular section to support a dead load of 10 kN/m and live load of 12 kN/m over the 3 spans of effective length 6 m which are simply supported at the end. Use M 20 concrete and Fe 415 steel. **10**
- Q.7** Determine reinforcement required for a beam size 300 mm × 600 mm subjected to factored bending moment of 80 kNm, factored shear force 70 kN and factored torsional moment of 40 kNm. Use M20 concrete and Fe500 steel. **09**

- Q.8** A short column $400 \text{ mm} \times 400 \text{ mm}$ is provided with 3-16 mm diameter. The length of column is 2.25 m. It is effectively held in position at both the ends & restrained against rotation at other end. Find ultimate load of the column. Use M20 & Fe 415. **09**
- Q.9** Design a circular column subjected to a working load of 1600 kN. The unsupported length of column is 3.5 m which is effectively held in position at both ends but not restrained against rotation. Use M25 concrete and Fe 415 steel. **09**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) While solving MCQ, IS 456-2000 is not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 Choose the correct alternatives from the given options. 14**
- 1) An R.C.C. beam without shear reinforcement may develop cracks in its bottom inclined roughly to the horizontal at _____. 01
 - a) 25 degree
 - b) 35 degree
 - c) 45 degree
 - d) 55 degree
 - 2) The effective cover of beam depends on _____. 01
 - a) Diameter of main reinforcement
 - b) Grade of reinforcing steel
 - c) Width of beam
 - d) All of these
 - 3) In a simply supported slab, alternate bars are curtailed at _____. 01
 - a) $1/4^{\text{th}}$ of the span
 - b) $1/5^{\text{th}}$ of the span
 - c) $1/6^{\text{th}}$ of the span
 - d) $1/7^{\text{th}}$ of the span
 - 4) A short column of size 250mm×350mm is provided with longitudinal reinforcement of diameter 20mm and the diameter of tie is 8mm. According to IS 456:2000, the maximum spacing between two ties is _____. 01
 - a) 200 mm
 - b) 350 mm
 - c) 300 mm
 - d) 250 mm
 - 5) The length of torsion reinforcement in two way slab is provided as _____. 01
 - a) Shorter span/4
 - b) Shorter span/5
 - c) Shorter span/8
 - d) Shorter span/10
 - 6) An RCC beam of 200mm×300mm effective is subjected to factored shear force 30 kN. The maximum nominal shear stress is _____. 01
 - a) 0.5 N/mm²
 - b) 0.6 N/mm²
 - c) 0.7 N/mm²
 - d) 0.8 N/mm²
 - 7) As per IS 456, the reinforcement in column should not be less than _____. 01
 - a) 0.5% and not more than 5% of cross-sectional area
 - b) 0.6% and not more than 6% of cross-sectional area
 - c) 0.7% and not more than 7% of cross-sectional area
 - d) 0.8% and not more than 8% of cross-sectional area

- 8) A part of the slab may be considered as the flange of the T beam if _____. **01**
- a) Flange has adequate reinforcement transverse to beam
 - b) It is built integrally with the beam
 - c) It is effectively bonded together with the beam
 - d) All the above
- 9) A concrete column is reinforced with 4 bars of 20mm diameter. Determine the design axial load carrying capacity of a column of size 400mm × 400mm. Consider M20 grade concrete, Fe415 grade and column is perfectly axially loaded. **02**
- a) 2420 kN
 - b) 2020 kN
 - c) 1610 kN
 - d) 1210 kN
- 10) A rectangular section 300mm×700mm overall dimension. 30mm effective cover to compression and tension steel, is reinforced with 2 bars of 20mm and 4 bars of 20mm diameter respectively. Grade Fe415 and M25. Then the depth of neutral axis will be _____. **02**
- a) 105 mm
 - b) 83 mm
 - c) 74 mm
 - d) 93 mm
- 11) A flanged beam is having the following dimension: width of flange, $b_f = 1000\text{mm}$ depth of flange, $D_f = 125\text{mm}$, width of web, $b_w = 250\text{ mm}$ and overall depth of beam, $D = 250\text{ mm}$. The concrete grade is M20 and the grade of reinforcing steel is Fe415. The clear cover is 25 mm. The moment of resistance the section is _____. **02**
- a) 95.891 kNm
 - b) 127.854 kNm
 - c) 159.818 kNm
 - d) 191.781 kNm

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 2 and 6 is compulsory.
2) Solve any two questions from the remaining questions of each section.
3) Use of IS 456:2000 and non-programmable calculator is allowed.
4) Figure to the right indicates full marks.
5) Assume additional suitable data if necessary and state it clearly.
6) Draw neat sketch of reinforcement details.

Section – I

- Q.2** A roof of clear dimensions 4.5 m × 6m supported on walls of 230mm thickness, with corners are held down. All the four edges of the slab are discontinuous. Design the slab, if the beam is carrying a live load of 4 kN/m². Use M 20 & Fe 415 steel. **10**
- Q.3** Design the simply supported rectangular beam of 250 mm width to carry live load of 26 kN/m. The clear span is 4 m and bearing at each end is 230 mm. Use M20, Fe 500. **09**
- Q.4** A doubly reinforced beam 250 mm × 500 mm is provided with 3 bars of 16 mm diameter as compression steel with an effective cover of 50 mm and 4 bars of 20 mm diameter as tensile steel. Determine ultimate moment if M20 and Fe 500 grade steel. **09**
- Q.5** Calculate the ultimate flexural strength of T beam section having following sectional properties: **09**
Width of flange = 1200 mm
Depth of flange = 120 mm
Width of rib = 300 mm
Effective depth = 600 mm
Area of tensile steel = 8 bars of 25 mm diameter
Materials: M20, Fe 415

Section – II

- Q.6** Design a continuous reinforced concrete beam of rectangular section to support a dead load of 10 kN/m and live load of 12 kN/m over the 3 spans of effective length 6 m which are simply supported at the end. Use M 20 concrete and Fe 415 steel. **10**
- Q.7** Determine reinforcement required for a beam size 300 mm × 600 mm subjected to factored bending moment of 80 kNm, factored shear force 70 kN and factored torsional moment of 40 kNm. Use M20 concrete and Fe500 steel. **09**

- Q.8** A short column $400 \text{ mm} \times 400 \text{ mm}$ is provided with 3-16 mm diameter. The length of column is 2.25 m. It is effectively held in position at both the ends & restrained against rotation at other end. Find ultimate load of the column. Use M20 & Fe 415. **09**
- Q.9** Design a circular column subjected to a working load of 1600 kN. The unsupported length of column is 3.5 m which is effectively held in position at both ends but not restrained against rotation. Use M25 concrete and Fe 415 steel. **09**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) While solving MCQ, IS 456-2000 is not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 Choose the correct alternatives from the given options. 14**
- 1) The length of torsion reinforcement in two way slab is provided as _____. 01
 - a) Shorter span/4
 - b) Shorter span/5
 - c) Shorter span/8
 - d) Shorter span/10
 - 2) An RCC beam of 200mm×300mm effective is subjected to factored shear force 30 kN. The maximum nominal shear stress is _____. 01
 - a) 0.5 N/mm²
 - b) 0.6 N/mm²
 - c) 0.7 N/mm²
 - d) 0.8 N/mm²
 - 3) As per IS 456, the reinforcement in column should not be less than _____. 01
 - a) 0.5% and not more than 5% of cross-sectional area
 - b) 0.6% and not more than 6% of cross-sectional area
 - c) 0.7% and not more than 7% of cross-sectional area
 - d) 0.8% and not more than 8% of cross-sectional area
 - 4) A part of the slab may be considered as the flange of the T beam if _____. 01
 - a) Flange has adequate reinforcement transverse to beam
 - b) It is built integrally with the beam
 - c) It is effectively bonded together with the beam
 - d) All the above
 - 5) An R.C.C. beam without shear reinforcement may develop cracks in its bottom inclined roughly to the horizontal at _____. 01
 - a) 25 degree
 - b) 35 degree
 - c) 45 degree
 - d) 55 degree
 - 6) The effective cover of beam depends on _____. 01
 - a) Diameter of main reinforcement
 - b) Grade of reinforcing steel
 - c) Width of beam
 - d) All of these
 - 7) In a simply supported slab, alternate bars are curtailed at _____. 01
 - a) 1/4th of the span
 - b) 1/5th of the span
 - c) 1/6th of the span
 - d) 1/7th of the span

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures - I (BTN01505)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question No. 2 and 6 is compulsory.
 - 2) Solve any two questions from the remaining questions of each section.
 - 3) Use of IS 456:2000 and non-programmable calculator is allowed.
 - 4) Figure to the right indicates full marks.
 - 5) Assume additional suitable data if necessary and state it clearly.
 - 6) Draw neat sketch of reinforcement details.

Section – I

- Q.2** A roof of clear dimensions 4.5 m × 6m supported on walls of 230mm thickness, with corners are held down. All the four edges of the slab are discontinuous. Design the slab, if the beam is carrying a live load of 4 kN/m². Use M 20 & Fe 415 steel. **10**
- Q.3** Design the simply supported rectangular beam of 250 mm width to carry live load of 26 kN/m. The clear span is 4 m and bearing at each end is 230 mm. Use M20, Fe 500. **09**
- Q.4** A doubly reinforced beam 250 mm × 500 mm is provided with 3 bars of 16 mm diameter as compression steel with an effective cover of 50 mm and 4 bars of 20 mm diameter as tensile steel. Determine ultimate moment if M20 and Fe 500 grade steel. **09**
- Q.5** Calculate the ultimate flexural strength of T beam section having following sectional properties: **09**
 Width of flange = 1200 mm
 Depth of flange = 120 mm
 Width of rib = 300 mm
 Effective depth = 600 mm
 Area of tensile steel = 8 bars of 25 mm diameter
 Materials: M20, Fe 415

Section – II

- Q.6** Design a continuous reinforced concrete beam of rectangular section to support a dead load of 10 kN/m and live load of 12 kN/m over the 3 spans of effective length 6 m which are simply supported at the end. Use M 20 concrete and Fe 415 steel. **10**
- Q.7** Determine reinforcement required for a beam size 300 mm × 600 mm subjected to factored bending moment of 80 kNm, factored shear force 70 kN and factored torsional moment of 40 kNm. Use M20 concrete and Fe500 steel. **09**

- Q.8** A short column 400 mm × 400 mm is provided with 3-16 mm diameter. The length of column is 2.25 m. It is effectively held in position at both the ends & restrained against rotation at other end. Find ultimate load of the column. Use M20 & Fe 415. **09**
- Q.9** Design a circular column subjected to a working load of 1600 kN. The unsupported length of column is 3.5 m which is effectively held in position at both ends but not restrained against rotation. Use M25 concrete and Fe 415 steel. **09**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the quantity of wastewater required if water supply is 200 lpcd?
 - a) 160 lpcd
 - b) 140 lpcd
 - c) 135 lpcd
 - d) 150 lpcd
- 2) Which of the following is correct sequence?
 - a) Screening > Distribution > Aeration > Landfill
 - b) Screening > Sedimentation > Aeration > Landfill
 - c) Sedimentation > Aeration > Screening > Landfill
 - d) Aeration > Sedimentation > Landfill > Distribution
- 3) Which of the following are not the sources of wastewater?
 - a) Chimney
 - b) Kitchen
 - c) Bathroom
 - d) All of the above
- 4) In composting method by trenching, trenches of _____ m length are excavated.
 - a) 4 – 10
 - b) 7 – 12
 - c) 10 – 20
 - d) Above 20
- 5) Controlled tipping method of disposal of refuse requires an area of _____ m²/c/yr.
 - a) 0.1 – 0.3
 - b) 0.3 – 0.5
 - c) 0.5 – 1.0
 - d) 1.0 – 1.2
- 6) Which type of pollutant does Ozone belong to?
 - a) Primary
 - b) Secondary
 - c) Natural
 - d) None of the above
- 7) The coning plume from the stacks is observed in _____ type of atmosphere.
 - a) Stable
 - b) Unstable
 - c) Inversion
 - d) Neutral
- 8) Quantity of wastewater flowing through sewers in dry season is known as _____.
 - a) WWF
 - b) DWF
 - c) Storm water flow
 - d) Sullage

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section - I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section - II, and solve any two questions from the remaining.
 2) Figures to right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Draw complete and neat sketch of Activated Sludge treatment plant and discuss each part. **07**
 b) Define the following with equations: **03**
 i) Mean Cell Residence Time
 ii) F/M ratio
- Q.3** a) Design a completely mixed ASP for following data: **06**
 i) Wastewater flow = 20 MLd
 ii) Influent BOD = 200 mg/Lit
 iii) Effluent BOD = 25 mg/Lit
 iv) MLSS = 2000 mg/Lit
 v) F/M = 0.2
 vi) SVI = 80 ml/gm
 vii) Sludge age = 10 days
 Assume any missing data appropriately.
 b) What is Chemical Oxygen Demand? Differentiate between Chemical Oxygen Demand and Biochemical Oxygen Demand. **03**
- Q.4** a) Explain Trickling filter with the help of a diagram. **06**
 b) Differentiate between Vermicomposting and Indore Method of composting. **03**
- Q.5** a) Determine Ultimate BOD & BOD₃. If the BOD₅ is 200 mg/lit at 20°C, assuming the deoxygenation constant as 0.25/day. **06**
 b) Explain Moving Bed Biofilm Reactor with a neat diagram. **03**

Section – II

- Q.6** a) Discuss the oxygen sag analysis with the help of a diagram. **04**
 b) A stream, saturated with DO has flow of 1.3 m³/s, BOD of 4 mg/L and rate constant of 0.25 per day. It receives an effluent discharge of 0.35 m³/s. Having BOD 20 mg/L, DO 5 mg/L and rate constant 0.13 per day. The average velocity of flow of the stream is 0.15 m/s. Calculate the DO deficit at point 20 km & 40 km downstream. Assume that the temperature is 20°C throughout and BOD is measured at 5 days. Take saturation DO at 20°C as 9.17 mg/L. **06**

- Q.7** a) With the help of a diagram, explain cyclone Precipitator. **05**
b) Discuss the sources of Air pollution with the help of a diagram. **04**
- Q.8** a) Illustrate the functioning of Indore method of composting with the help of a diagram. **05**
b) Explain the conveyance system of solid waste. **04**
- Q.9** **Discuss the following:** **09**
a) Electrostatic Precipitator
b) Sludge drying Bed
c) MBBR

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Quantity of wastewater flowing through sewers in dry season is known as _____.
 - a) WWF
 - b) DWF
 - c) Storm water flow
 - d) Sullage
- 2) _____ sewer collects sewage directly from houses.
 - a) Trunk
 - b) Lateral
 - c) Sub main
 - d) House
- 3) Pick out the odd one from the following.
 - a) Sutro weir
 - b) Parshall flume
 - c) Proportional flow weir
 - d) V - notch
- 4) RBC and Trickling filters are examples of _____ process.
 - a) Suspended growth process
 - b) Anaerobic process
 - c) Attached growth process
 - d) All of the above
- 5) Maximum population that can be served by using septic tank is _____.
 - a) 100
 - b) 200
 - c) 250
 - d) 300
- 6) Organic loading adopted for low-rate trickling filter is _____ g/d/m³.
 - a) 80 to 320
 - b) 800 to 3200
 - c) 500 to 1000
 - d) 5000 to 10000
- 7) _____ is ultimate disposal option considered in Municipal Solid (MSW) waste management.
 - a) Landfill
 - b) Incineration
 - c) Composting
 - d) Open burning
- 8) What is the quantity of wastewater required if water supply is 200 lpcd?
 - a) 160 lpcd
 - b) 140 lpcd
 - c) 135 lpcd
 - d) 150 lpcd
- 9) Which of the following is correct sequence?
 - a) Screening > Distribution > Aeration > Landfill
 - b) Screening > Sedimentation > Aeration > Landfill
 - c) Sedimentation > Aeration > Screening > Landfill
 - d) Aeration > Sedimentation > Landfill > Distribution

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section - I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section - II, and solve any two questions from the remaining.
 2) Figures to right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Draw complete and neat sketch of Activated Sludge treatment plant and discuss each part. **07**
 b) Define the following with equations: **03**
 i) Mean Cell Residence Time
 ii) F/M ratio
- Q.3** a) Design a completely mixed ASP for following data: **06**
 i) Wastewater flow = 20 MLd
 ii) Influent BOD = 200 mg/Lit
 iii) Effluent BOD = 25 mg/Lit
 iv) MLSS = 2000 mg/Lit
 v) F/M = 0.2
 vi) SVI = 80 ml/gm
 vii) Sludge age = 10 days
 Assume any missing data appropriately.
 b) What is Chemical Oxygen Demand? Differentiate between Chemical Oxygen Demand and Biochemical Oxygen Demand. **03**
- Q.4** a) Explain Trickling filter with the help of a diagram. **06**
 b) Differentiate between Vermicomposting and Indore Method of composting. **03**
- Q.5** a) Determine Ultimate BOD & BOD₃. If the BOD₅ is 200 mg/lit at 20°C, assuming the deoxygenation constant as 0.25/day. **06**
 b) Explain Moving Bed Biofilm Reactor with a neat diagram. **03**

Section – II

- Q.6** a) Discuss the oxygen sag analysis with the help of a diagram. **04**
 b) A stream, saturated with DO has flow of 1.3 m³/s, BOD of 4 mg/L and rate constant of 0.25 per day. It receives an effluent discharge of 0.35 m³/s. Having BOD 20 mg/L, DO 5 mg/L and rate constant 0.13 per day. The average velocity of flow of the stream is 0.15 m/s. Calculate the DO deficit at point 20 km & 40 km downstream. Assume that the temperature is 20°C throughout and BOD is measured at 5 days. Take saturation DO at 20°C as 9.17 mg/L. **06**

- Q.7** a) With the help of a diagram, explain cyclone Precipitator. **05**
b) Discuss the sources of Air pollution with the help of a diagram. **04**
- Q.8** a) Illustrate the functioning of Indore method of composting with the help of a diagram. **05**
b) Explain the conveyance system of solid waste. **04**
- Q.9 Discuss the following:** **09**
a) Electrostatic Precipitator
b) Sludge drying Bed
c) MBBR

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) RBC and Trickling filters are examples of _____ process.
 - a) Suspended growth process
 - b) Anaerobic process
 - c) Attached growth process
 - d) All of the above
- 2) Maximum population that can be served by using septic tank is _____.
 - a) 100
 - b) 200
 - c) 250
 - d) 300
- 3) Organic loading adopted for low-rate trickling filter is _____ g/d/m³.
 - a) 80 to 320
 - b) 800 to 3200
 - c) 500 to 1000
 - d) 5000 to 10000
- 4) _____ is ultimate disposal option considered in Municipal Solid (MSW) waste management.
 - a) Landfill
 - b) Incineration
 - c) Composting
 - d) Open burning
- 5) What is the quantity of wastewater required if water supply is 200 lpcd?
 - a) 160 lpcd
 - b) 140 lpcd
 - c) 135 lpcd
 - d) 150 lpcd
- 6) Which of the following is correct sequence?
 - a) Screening > Distribution > Aeration > Landfill
 - b) Screening > Sedimentation > Aeration > Landfill
 - c) Sedimentation > Aeration > Screening > Landfill
 - d) Aeration > Sedimentation > Landfill > Distribution
- 7) Which of the following are not the sources of wastewater?
 - a) Chimney
 - b) Kitchen
 - c) Bathroom
 - d) All of the above
- 8) In composting method by trenching, trenches of _____ m length are excavated.
 - a) 4 – 10
 - b) 7 – 12
 - c) 10 – 20
 - d) Above 20

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section - I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section - II, and solve any two questions from the remaining.
 2) Figures to right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Draw complete and neat sketch of Activated Sludge treatment plant and discuss each part. **07**
- b) Define the following with equations: **03**
- i) Mean Cell Residence Time
 ii) F/M ratio
- Q.3** a) Design a completely mixed ASP for following data: **06**
- i) Wastewater flow = 20 MLd
 ii) Influent BOD = 200 mg/Lit
 iii) Effluent BOD = 25 mg/Lit
 iv) MLSS = 2000 mg/Lit
 v) F/M = 0.2
 vi) SVI = 80 ml/gm
 vii) Sludge age = 10 days
 Assume any missing data appropriately.
- b) What is Chemical Oxygen Demand? Differentiate between Chemical Oxygen Demand and Biochemical Oxygen Demand. **03**
- Q.4** a) Explain Trickling filter with the help of a diagram. **06**
- b) Differentiate between Vermicomposting and Indore Method of composting. **03**
- Q.5** a) Determine Ultimate BOD & BOD₃. If the BOD₅ is 200 mg/lit at 20°C, assuming the deoxygenation constant as 0.25/day. **06**
- b) Explain Moving Bed Biofilm Reactor with a neat diagram. **03**

Section – II

- Q.6** a) Discuss the oxygen sag analysis with the help of a diagram. **04**
- b) A stream, saturated with DO has flow of 1.3 m³/s, BOD of 4 mg/L and rate constant of 0.25 per day. It receives an effluent discharge of 0.35 m³/s. Having BOD 20 mg/L, DO 5 mg/L and rate constant 0.13 per day. The average velocity of flow of the stream is 0.15 m/s. Calculate the DO deficit at point 20 km & 40 km downstream. Assume that the temperature is 20°C throughout and BOD is measured at 5 days. Take saturation DO at 20°C as 9.17 mg/L. **06**

- | | | |
|------------|-------------------------------------------------------------------------------------------------|-----------|
| Q.7 | a) With the help of a diagram, explain cyclone Precipitator. | 05 |
| | b) Discuss the sources of Air pollution with the help of a diagram. | 04 |
| Q.8 | a) Illustrate the functioning of Indore method of composting with the help of a diagram. | 05 |
| | b) Explain the conveyance system of solid waste. | 04 |
| Q.9 | Discuss the following: | 09 |
| | a) Electrostatic Precipitator | |
| | b) Sludge drying Bed | |
| | c) MBBR | |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which type of pollutant does Ozone belong to?
 - a) Primary
 - b) Secondary
 - c) Natural
 - d) None of the above
- 2) The coning plume from the stacks is observed in _____ type of atmosphere.
 - a) Stable
 - b) Unstable
 - c) Inversion
 - d) Neutral
- 3) Quantity of wastewater flowing through sewers in dry season is known as _____.
 - a) WWF
 - b) DWF
 - c) Storm water flow
 - d) Sullage
- 4) _____ sewer collects sewage directly from houses.
 - a) Trunk
 - b) Lateral
 - c) Sub main
 - d) House
- 5) Pick out the odd one from the following.
 - a) Sutro weir
 - b) Parshall flume
 - c) Proportional flow weir
 - d) V - notch
- 6) RBC and Trickling filters are examples of _____ process.
 - a) Suspended growth process
 - b) Anaerobic process
 - c) Attached growth process
 - d) All of the above
- 7) Maximum population that can be served by using septic tank is _____.
 - a) 100
 - b) 200
 - c) 250
 - d) 300
- 8) Organic loading adopted for low-rate trickling filter is _____ g/d/m³.
 - a) 80 to 320
 - b) 800 to 3200
 - c) 500 to 1000
 - d) 5000 to 10000
- 9) _____ is ultimate disposal option considered in Municipal Solid (MSW) waste management.
 - a) Landfill
 - b) Incineration
 - c) Composting
 - d) Open burning

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Environmental Engineering – II (BTN01506)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section - I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section - II, and solve any two questions from the remaining.
 2) Figures to right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Draw complete and neat sketch of Activated Sludge treatment plant and discuss each part. **07**
 b) Define the following with equations: **03**
 i) Mean Cell Residence Time
 ii) F/M ratio
- Q.3** a) Design a completely mixed ASP for following data: **06**
 i) Wastewater flow = 20 MLd
 ii) Influent BOD = 200 mg/Lit
 iii) Effluent BOD = 25 mg/Lit
 iv) MLSS = 2000 mg/Lit
 v) F/M = 0.2
 vi) SVI = 80 ml/gm
 vii) Sludge age = 10 days
 Assume any missing data appropriately.
 b) What is Chemical Oxygen Demand? Differentiate between Chemical Oxygen Demand and Biochemical Oxygen Demand. **03**
- Q.4** a) Explain Trickling filter with the help of a diagram. **06**
 b) Differentiate between Vermicomposting and Indore Method of composting. **03**
- Q.5** a) Determine Ultimate BOD & BOD₃. If the BOD₅ is 200 mg/lit at 20°C, assuming the deoxygenation constant as 0.25/day. **06**
 b) Explain Moving Bed Biofilm Reactor with a neat diagram. **03**

Section – II

- Q.6** a) Discuss the oxygen sag analysis with the help of a diagram. **04**
 b) A stream, saturated with DO has flow of 1.3 m³/s, BOD of 4 mg/L and rate constant of 0.25 per day. It receives an effluent discharge of 0.35 m³/s. Having BOD 20 mg/L, DO 5 mg/L and rate constant 0.13 per day. The average velocity of flow of the stream is 0.15 m/s. Calculate the DO deficit at point 20 km & 40 km downstream. Assume that the temperature is 20°C throughout and BOD is measured at 5 days. Take saturation DO at 20°C as 9.17 mg/L. **06**

- Q.7** a) With the help of a diagram, explain cyclone Precipitator. **05**
b) Discuss the sources of Air pollution with the help of a diagram. **04**
- Q.8** a) Illustrate the functioning of Indore method of composting with the help of a diagram. **05**
b) Explain the conveyance system of solid waste. **04**
- Q.9** **Discuss the following:** **09**
a) Electrostatic Precipitator
b) Sludge drying Bed
c) MBBR

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Identify the correct order of alignment survey in which they conduct in the field.
 - a) Final location and detailed survey, Preliminary survey, Reconnaissance, and map study
 - b) Map study, Final location and detailed survey, Preliminary survey, and Reconnaissance
 - c) Map study, Reconnaissance, Preliminary survey, Final location and detailed survey
 - d) Preliminary survey, Map study, Reconnaissance, Final location and detailed survey
- 2) Pradhan Mantri Gram Sadak Yojna (PMGSY), launched in the year 2000, aims to provide rural connectivity with _____.
 - a) Fair-weather roads
 - b) All-weather roads
 - c) State Highway
 - d) Major District Road
- 3) Rural roads in India are commonly classified as _____.
 - a) Other District roads and Village Roads
 - b) National Highways and State Highways
 - c) Major District Roads and Other District Roads
 - d) Other District Roads and
- 4) The ruling design speed considered for the geometric design of rural roads at plain terrain is _____.
 - a) 60kmph
 - b) 50kmph
 - c) 40kmph
 - d) 30kmph
- 5) The carriageway width of a single in rural road is considered as _____.
 - a) 5.5m
 - b) 7.5m
 - c) 3.75m
 - d) 10.0m
- 6) The camber value suggested at high rainfall areas where this bituminous pavement is provided _____.
 - a) 5.0%
 - b) 4.0%
 - c) 3.5%
 - d) 2.5%

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Answer any two questions. 14

- a) Explain with sketches the various factors controlling the alignment of the road.
- b) What are the objectives of a preliminary survey for highway alignment? Enumerate the details to be collected.
- c) Calculate the safe stopping sight distance on a level road stretch for a design speed of kmph for
 - 1) two-way traffic on a two-lane road, and
 - 2) two-way traffic on a single-lane road
 Assume the coefficient of friction is 0.37 and the reaction time of the driver is 2.5sec.
- d) Design the rate of superelevation for a horizontal highway curve of radius 500m and design speed of 100kmph.

Q.3 Answer any two questions. 14

- a) Draw a neat cross-section of flexible pavement and explain the functions of each layer.
- b) A pavement is to be designed for a subgrade CBR of 4 percent, with initial traffic of 70 motorized vehicles per day (except 2-wheelers) in both directions of which commercial vehicle is 30 CVPD, with a growth rate of 6 percent per annum for a location having annual rainfall of 1200 mm. The design life is 10 years. Determine the pavement thickness. Refer to Fig-1 for Pavement thickness.
- c) Draw a neat cross-section of rigid pavement and explain the functions of each layer.
- d) Write a short note on Concrete Block Pavement and interlocking concrete block pavement.

Section – II

Q.4 Answer any two questions. 14

- a) What are the requirements of a good highway drainage system?
- b) Explain with the sketches how the subsurface drainage system is provided to lower the water table, seepage flow, and capillary rise.
- c) Write an explanatory note on cross drainage and drainage structures.
- d) Write a brief note on specifications and construction procedures of soil subgrade.

Q.5 Answer any two questions.

- Write a step-by-step construction procedure for the Water Bound Macadam layer in rural areas.
- Discuss the principle and scope of soil-lime stabilization.
- Explain the construction procedure of the soil-lime base course.
- Write a short note on different types of distress in the flexible pavement with causes.

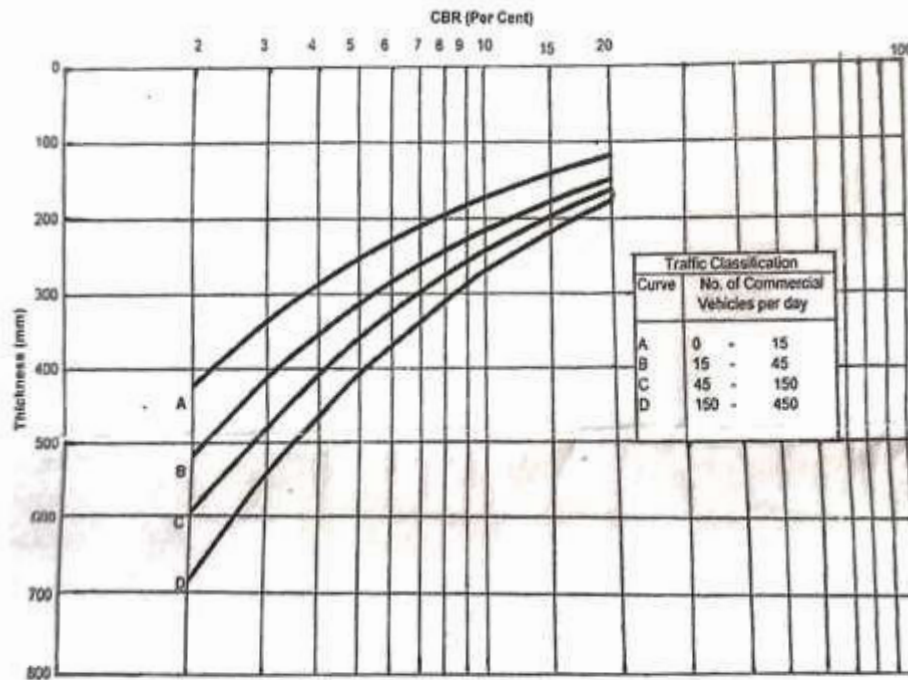


Fig-1-Pavement Thickness Chart

- 8) Identify the correct order of alignment survey in which they conduct in the field.
- Final location and detailed survey, Preliminary survey, Reconnaissance, and map study
 - Map study, Final location and detailed survey, Preliminary survey, and Reconnaissance
 - Map study, Reconnaissance, Preliminary survey, Final location and detailed survey
 - Preliminary survey, Map study, Reconnaissance, Final location and detailed survey
- 9) Pradhan Mantri Gram Sadak Yojna (PMGSY), launched in the year 2000, aims to provide rural connectivity with _____.
- Fair-weather roads
 - All-weather roads
 - State Highway
 - Major District Road
- 10) Rural roads in India are commonly classified as _____.
- Other District roads and Village Roads
 - National Highways and State Highways
 - Major District Roads and Other District Roads
 - Other District Roads and
- 11) The ruling design speed considered for the geometric design of rural roads at plain terrain is _____.
- 60kmph
 - 50kmph
 - 40kmph
 - 30kmph
- 12) The carriageway width of a single in rural road is considered as _____.
- 5.5m
 - 7.5m
 - 3.75m
 - 10.0m
- 13) The camber value suggested at high rainfall areas where this bituminous pavement is provided _____.
- 5.0%
 - 4.0%
 - 3.5%
 - 2.5%
- 14) Clear distance ahead needed by a driver to bring his vehicle to a stop before collision with a stationary object in his path, _____.
- Superelevation
 - Camber
 - Stopping Sight Distance
 - Setback Distance

Seat No.	
-------------	--

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Answer any two questions. 14

- a) Explain with sketches the various factors controlling the alignment of the road.
- b) What are the objectives of a preliminary survey for highway alignment? Enumerate the details to be collected.
- c) Calculate the safe stopping sight distance on a level road stretch for a design speed of kmph for
 - 1) two-way traffic on a two-lane road, and
 - 2) two-way traffic on a single-lane road
 Assume the coefficient of friction is 0.37 and the reaction time of the driver is 2.5sec.
- d) Design the rate of superelevation for a horizontal highway curve of radius 500m and design speed of 100kmph.

Q.3 Answer any two questions. 14

- a) Draw a neat cross-section of flexible pavement and explain the functions of each layer.
- b) A pavement is to be designed for a subgrade CBR of 4 percent, with initial traffic of 70 motorized vehicles per day (except 2-wheelers) in both directions of which commercial vehicle is 30 CVPD, with a growth rate of 6 percent per annum for a location having annual rainfall of 1200 mm. The design life is 10 years. Determine the pavement thickness. Refer to Fig-1 for Pavement thickness.
- c) Draw a neat cross-section of rigid pavement and explain the functions of each layer.
- d) Write a short note on Concrete Block Pavement and interlocking concrete block pavement.

Section – II

Q.4 Answer any two questions. 14

- a) What are the requirements of a good highway drainage system?
- b) Explain with the sketches how the subsurface drainage system is provided to lower the water table, seepage flow, and capillary rise.
- c) Write an explanatory note on cross drainage and drainage structures.
- d) Write a brief note on specifications and construction procedures of soil subgrade.

Q.5 Answer any two questions.

- Write a step-by-step construction procedure for the Water Bound Macadam layer in rural areas.
- Discuss the principle and scope of soil-lime stabilization.
- Explain the construction procedure of the soil-lime base course.
- Write a short note on different types of distress in the flexible pavement with causes.

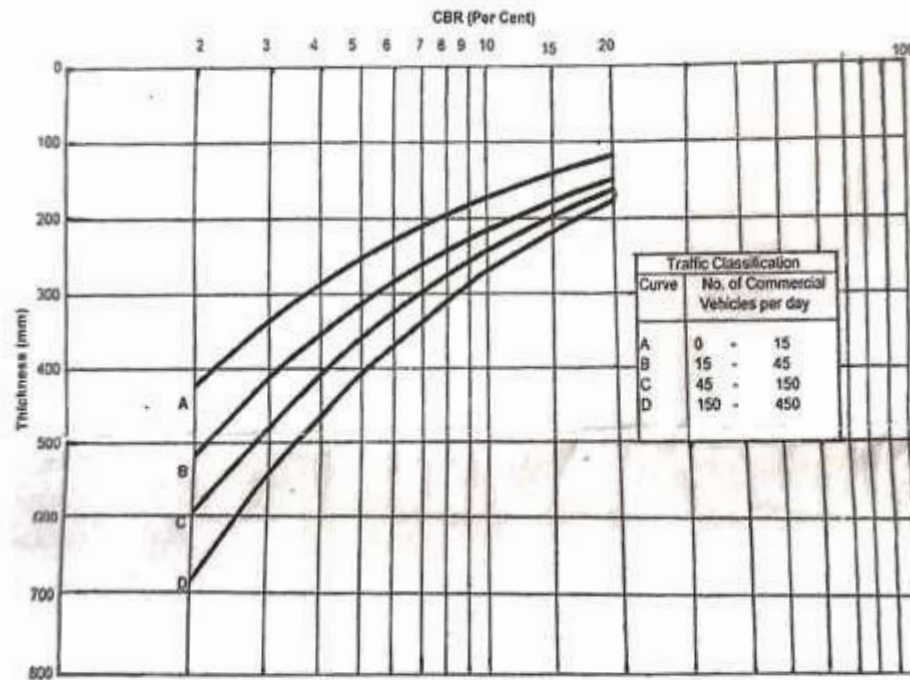


Fig-1-Pavement Thickness Chart

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the full form of GSB?

a) Granular Surface Base	b) Granular Slope Base
c) Granular Sub Base	d) Granular Stone Ballast
- 2) Lime stabilization is recommended for soils having _____.

a) $PI > 8$	b) $PI < 8$
c) $PI < 10$	d) $PI < 50$
- 3) IRC Code used for design of rigid pavement is _____.

a) IRC-37	b) IRC-58
c) IRC-80	d) IRC-81
- 4) The thickness of the rural roads is designed for traffic up to, _____.

a) 250CVPD	b) 350CVPD
c) 450CVPD	d) 650CVPD
- 5) Identify the correct order of alignment survey in which they conduct in the field.
 - a) Final location and detailed survey, Preliminary survey, Reconnaissance, and map study
 - b) Map study, Final location and detailed survey, Preliminary survey, and Reconnaissance
 - c) Map study, Reconnaissance, Preliminary survey, Final location and detailed survey
 - d) Preliminary survey, Map study, Reconnaissance, Final location and detailed survey
- 6) Pradhan Mantri Gram Sadak Yojna (PMGSY), launched in the year 2000, aims to provide rural connectivity with _____.

a) Fair-weather roads	b) All-weather roads
c) State Highway	d) Major District Road

- 7) Rural roads in India are commonly classified as _____.
a) Other District roads and Village Roads
b) National Highways and State Highways
c) Major District Roads and Other District Roads
d) Other District Roads and
- 8) The ruling design speed considered for the geometric design of rural roads at plain terrain is _____.
a) 60kmph
b) 50kmph
c) 40kmph
d) 30kmph
- 9) The carriageway width of a single in rural road is considered as _____.
a) 5.5m
b) 7.5m
c) 3.75m
d) 10.0m
- 10) The camber value suggested at high rainfall areas where this bituminous pavement is provided _____.
a) 5.0%
b) 4.0%
c) 3.5%
d) 2.5%
- 11) Clear distance ahead needed by a driver to bring his vehicle to a stop before collision with a stationary object in his path, _____.
a) Superelevation
b) Camber
c) Stopping Sight Distance
d) Setback Distance
- 12) Maximum percentage of superelevation specified in plain and rolling terrain is, _____.
a) 4.0%
b) 5.0%
c) 6.0%
d) 7.0%
- 13) The specified particle size of sand is from _____.
a) 80mm to 4.75mm
b) 4.75mm to 0.075mm
c) 0.075mm to 0.002mm
d) Less than 0.002mm
- 14) The maximum laboratory density required for subgrade and earthen shoulders is, _____.
a) 1.44gm/cc
b) 1.52gm/cc
c) 1.65gm/cc
d) 1.0gm/cc

Seat No.	
-------------	--

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Answer any two questions.

14

- a) Explain with sketches the various factors controlling the alignment of the road.
- b) What are the objectives of a preliminary survey for highway alignment? Enumerate the details to be collected.
- c) Calculate the safe stopping sight distance on a level road stretch for a design speed of kmph for
 - 1) two-way traffic on a two-lane road, and
 - 2) two-way traffic on a single-lane road
 Assume the coefficient of friction is 0.37 and the reaction time of the driver is 2.5sec.
- d) Design the rate of superelevation for a horizontal highway curve of radius 500m and design speed of 100kmph.

Q.3 Answer any two questions.

14

- a) Draw a neat cross-section of flexible pavement and explain the functions of each layer.
- b) A pavement is to be designed for a subgrade CBR of 4 percent, with initial traffic of 70 motorized vehicles per day (except 2-wheelers) in both directions of which commercial vehicle is 30 CVPD, with a growth rate of 6 percent per annum for a location having annual rainfall of 1200 mm. The design life is 10 years. Determine the pavement thickness. Refer to Fig-1 for Pavement thickness.
- c) Draw a neat cross-section of rigid pavement and explain the functions of each layer.
- d) Write a short note on Concrete Block Pavement and interlocking concrete block pavement.

Section – II

Q.4 Answer any two questions.

14

- a) What are the requirements of a good highway drainage system?
- b) Explain with the sketches how the subsurface drainage system is provided to lower the water table, seepage flow, and capillary rise.
- c) Write an explanatory note on cross drainage and drainage structures.
- d) Write a brief note on specifications and construction procedures of soil subgrade.

Q.5 Answer any two questions.

- Write a step-by-step construction procedure for the Water Bound Macadam layer in rural areas.
- Discuss the principle and scope of soil-lime stabilization.
- Explain the construction procedure of the soil-lime base course.
- Write a short note on different types of distress in the flexible pavement with causes.

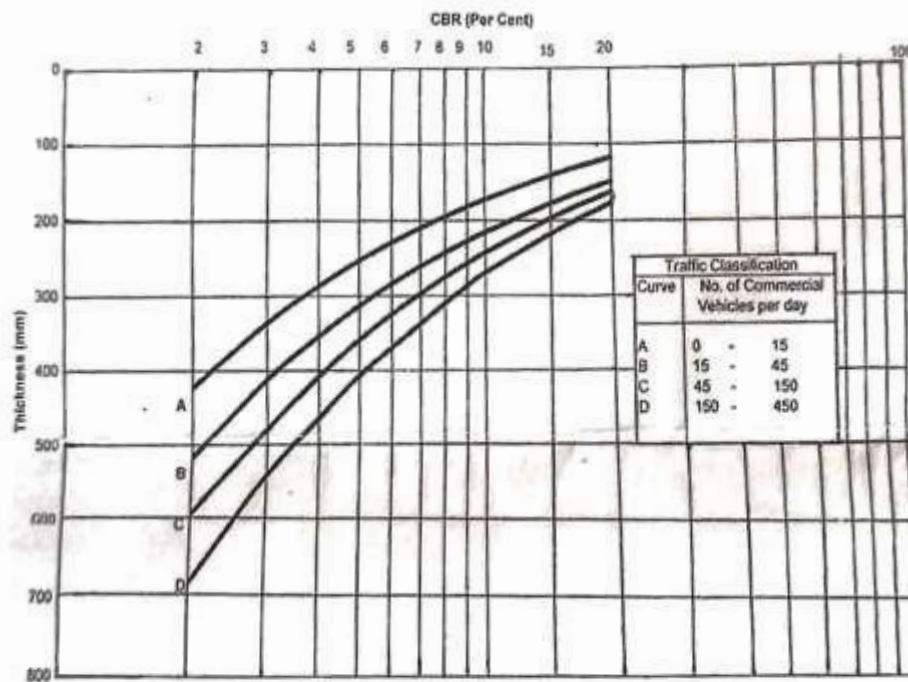


Fig-1-Pavement Thickness Chart

Seat No.	
-----------------	--

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The camber value suggested at high rainfall areas where this bituminous pavement is provided _____.

a) 5.0%	b) 4.0%
c) 3.5%	d) 2.5%

- 2) Clear distance ahead needed by a driver to bring his vehicle to a stop before collision with a stationary object in his path, _____.

a) Superelevation	b) Camber
c) Stopping Sight Distance	d) Setback Distance

- 3) Maximum percentage of superelevation specified in plain and rolling terrain is, _____.

a) 4.0%	b) 5.0%
c) 6.0%	d) 7.0%

- 4) The specified particle size of sand is from _____.

a) 80mm to 4.75mm	b) 4.75mm to 0.075mm
c) 0.075mm to 0.002mm	d) Less than 0.002mm

- 5) The maximum laboratory density required for subgrade and earthen shoulders is, _____.

a) 1.44gm/cc	b) 1.52gm/cc
c) 1.65gm/cc	d) 1.0gm/cc

- 6) What is the full form of GSB?

a) Granular Surface Base	b) Granular Slope Base
c) Granular Sub Base	d) Granular Stone Ballast

- 7) Lime stabilization is recommended for soils having _____.

a) $PI > 8$	b) $PI < 8$
c) $PI < 10$	d) $PI < 50$

- 8) IRC Code used for design of rigid pavement is _____.

a) IRC-37	b) IRC-58
c) IRC-80	d) IRC-81

Seat No.	
----------	--

Set **S**

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Planning and Design of Rural Roads (BTN01515)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Answer any two questions.

14

- a) Explain with sketches the various factors controlling the alignment of the road.
- b) What are the objectives of a preliminary survey for highway alignment? Enumerate the details to be collected.
- c) Calculate the safe stopping sight distance on a level road stretch for a design speed of kmph for
 - 1) two-way traffic on a two-lane road, and
 - 2) two-way traffic on a single-lane road
 Assume the coefficient of friction is 0.37 and the reaction time of the driver is 2.5sec.
- d) Design the rate of superelevation for a horizontal highway curve of radius 500m and design speed of 100kmph.

Q.3 Answer any two questions.

14

- a) Draw a neat cross-section of flexible pavement and explain the functions of each layer.
- b) A pavement is to be designed for a subgrade CBR of 4 percent, with initial traffic of 70 motorized vehicles per day (except 2-wheelers) in both directions of which commercial vehicle is 30 CVPD, with a growth rate of 6 percent per annum for a location having annual rainfall of 1200 mm. The design life is 10 years. Determine the pavement thickness. Refer to Fig-1 for Pavement thickness.
- c) Draw a neat cross-section of rigid pavement and explain the functions of each layer.
- d) Write a short note on Concrete Block Pavement and interlocking concrete block pavement.

Section – II

Q.4 Answer any two questions.

14

- a) What are the requirements of a good highway drainage system?
- b) Explain with the sketches how the subsurface drainage system is provided to lower the water table, seepage flow, and capillary rise.
- c) Write an explanatory note on cross drainage and drainage structures.
- d) Write a brief note on specifications and construction procedures of soil subgrade.

Q.5 Answer any two questions.

- Write a step-by-step construction procedure for the Water Bound Macadam layer in rural areas.
- Discuss the principle and scope of soil-lime stabilization.
- Explain the construction procedure of the soil-lime base course.
- Write a short note on different types of distress in the flexible pavement with causes.

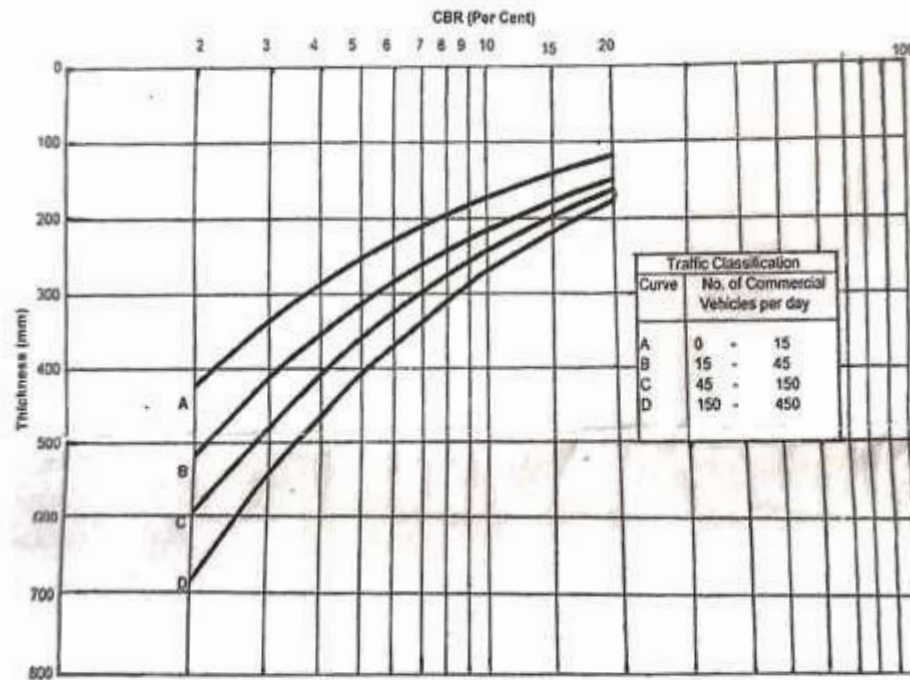


Fig-1-Pavement Thickness Chart

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) In India, _____ is the Green Building rating system which help costumer to determine a structure's level of environmental performance.

a) LEED	b) Nabers
c) GRIHA	d) BREEAM
- 2) Centralized wastewater treatment plant (WWTP) can be converted to green infrastructure by _____.

a) Reusing sludge as fertilizer
b) Reusing treated waste water in curing of roads
c) Providing imported solar panels in the WWTP
d) Construction of WTP using flyash bricks
- 3) Which of the following is green product?

a) Wooden table	b) Plastic bottle
c) Volatile paints	d) All of the Above
- 4) Resource efficiency can be achieved by utilizing materials to _____.

a) Recycled content	b) Reusable content
c) Reusable packaging	d) None of the above
- 5) _____ Weight is applied for compressing in the process of preparing CSEB?

a) > 15 Tonnes	b) < 15 Tonnes
c) > 12 Tonnes	d) < 12 Tonnes
- 6) Binders used in CSEB are _____.

a) Cement and/or lime	b) Cement and sand
c) Lime and sand	d) Lime and silt
- 7) The cradle to grave embodied energy life cycle does not include _____ required to utilize the final product.

a) Initial embodied energy	b) Operational energy
c) Demolition energy	d) All of the above
- 8) In general _____ holds highest energy in the life cycle analysis of any product.

a) Building operations	b) Transportation
c) Demolition	d) None of the above

Seat No.	
-----------------	--

Set P

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|----------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) What is green building? Explain goals of green building in detail. | 05 |
| | b) Explain different types of embodied energy & Discuss Various types of method to calculated embodied energy. | 05 |
| Q.3 | a) What are carbon credits? How do carbon credits work? | 05 |
| | b) What are funicular shells & Explain Design of funicular shells roof. | 04 |
| Q.4 | a) What are carbon footprints? Explain the activities that affects the carbon footprints of individuals? | 05 |
| | b) Explain various Criteria for selection of green material/Products with a particle example. | 04 |
| Q.5 | a) What is CSEB? Provide advantages of CSEB. | 05 |
| | b) Explain composite beam in detail. | 04 |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What are Sustainable options for food & Beverage manufacturing? | 05 |
| | b) What are eco audits & eco tools? Explain with examples? | 05 |
| Q.7 | a) Enlist and explain different types of Industrial waste. | 05 |
| | b) Elucidate Benefits of decarbonizing food & beverages. | 04 |
| Q.8 | a) Discuss use of material property chart? | 05 |
| | b) Define Recycle of waste. Discuss advantages of recycling of waste with a practical example. | 04 |
| Q.9 | a) Explain material selection strategy for choosing a Car in sustainable point of view. | 05 |
| | b) Enlist material for light weight structures & State advantage of using them. | 04 |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) In general _____ holds highest energy in the life cycle analysis of any product.
 - a) Building operations
 - b) Transportation
 - c) Demolition
 - d) None of the above
- 2) Glass is _____ recyclable.
 - a) 100%
 - b) 75%
 - c) 50%
 - d) 25%
- 3) Flyash bricks are composed of _____ flyash.
 - a) 5% - 10%
 - b) 6% - 10%
 - c) 7% - 10%
 - d) 8% - 10%
- 4) Polyester is the example of _____.
 - a) Thermoplastics
 - b) Thermoset plastics
 - c) Thermal plastics
 - d) None of the above
- 5) Macro plastics are having size _____.
 - a) < 5 mm
 - b) > 5 mm
 - c) > 15 mm
 - d) > 20 mm
- 6) Reducing Disposable Coffee cup waste would be _____ to the economy.
 - a) Good
 - b) Bad
 - c) No effect
 - d) None of the above
- 7) In carbon ratings, cost of car is _____ proportional to carbon emissions.
 - a) directly
 - b) inversely
 - c) equally
 - d) none of the above
- 8) In India, _____ is the Green Building rating system which help costumer to determine a structure's level of environmental performance.
 - a) LEED
 - b) Nabers
 - c) GRIHA
 - d) BREEAM

- 9) Centralized wastewater treatment plant (WWTP) can be converted to green infrastructure by _____.
- a) Reusing sludge as fertilizer
 - b) Reusing treated waste water in curing of roads
 - c) Providing imported solar panels in the WWTP
 - d) Construction of WTP using flyash bricks
- 10) Which of the following is green product?
- a) Wooden table
 - b) Plastic bottle
 - c) Volatile paints
 - d) All of the Above
- 11) Resource efficiency can be achieved by utilizing materials to _____.
- a) Recycled content
 - b) Reusable content
 - c) Reusable packaging
 - d) None of the above
- 12) _____ Weight is applied for compressing in the process of preparing CSEB?
- a) > 15 Tonnes
 - b) < 15 Tonnes
 - c) > 12 Tonnes
 - d) < 12 Tonnes
- 13) Binders used in CSEB are _____.
- a) Cement and/or lime
 - b) Cement and sand
 - c) Lime and sand
 - d) Lime and silt
- 14) The cradle to grave embodied energy life cycle does not include _____ required to utilize the final product.
- a) Initial embodied energy
 - b) Operational energy
 - c) Demolition energy
 - d) All of the above

Seat No.	
-------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|-----------|-------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | What is green building? Explain goals of green building in detail. | 05 |
| | b) | Explain different types of embodied energy & Discuss Various types of method to calculated embodied energy. | 05 |
| Q.3 | a) | What are carbon credits? How do carbon credits work? | 05 |
| | b) | What are funicular shells & Explain Design of funicular shells roof. | 04 |
| Q.4 | a) | What are carbon footprints? Explain the activities that affects the carbon footprints of individuals? | 05 |
| | b) | Explain various Criteria for selection of green material/Products with a particle example. | 04 |
| Q.5 | a) | What is CSEB? Provide advantages of CSEB. | 05 |
| | b) | Explain composite beam in detail. | 04 |

Section – II

- | | | | |
|------------|-----------|---------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | What are Sustainable options for food & Beverage manufacturing? | 05 |
| | b) | What are eco audits & eco tools? Explain with examples? | 05 |
| Q.7 | a) | Enlist and explain different types of Industrial waste. | 05 |
| | b) | Elucidate Benefits of decarbonizing food & beverages. | 04 |
| Q.8 | a) | Discuss use of material property chart? | 05 |
| | b) | Define Recycle of waste. Discuss advantages of recycling of waste with a practical example. | 04 |
| Q.9 | a) | Explain material selection strategy for choosing a Car in sustainable point of view. | 05 |
| | b) | Enlist material for light weight structures & State advantage of using them. | 04 |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Polyester is the example of _____.
 - a) Thermoplastics
 - b) Thermoset plastics
 - c) Thermal plastics
 - d) None of the above
- 2) Macro plastics are having size _____.
 - a) < 5 mm
 - b) > 5 mm
 - c) > 15 mm
 - d) > 20 mm
- 3) Reducing Disposable Coffee cup waste would be _____ to the economy.
 - a) Good
 - b) Bad
 - c) No effect
 - d) None of the above
- 4) In carbon ratings, cost of car is _____ proportional to carbon emissions.
 - a) directly
 - b) inversely
 - c) equally
 - d) none of the above
- 5) In India, _____ is the Green Building rating system which help costumer to determine a structure's level of environmental performance.
 - a) LEED
 - b) Nabers
 - c) GRIHA
 - d) BREEAM
- 6) Centralized wastewater treatment plant (WWTP) can be converted to green infrastructure by _____.
 - a) Reusing sludge as fertilizer
 - b) Reusing treated waste water in curing of roads
 - c) Providing imported solar panels in the WWTP
 - d) Construction of WTP using flyash bricks
- 7) Which of the following is green product?
 - a) Wooden table
 - b) Plastic bottle
 - c) Volatile paints
 - d) All of the Above
- 8) Resource efficiency can be achieved by utilizing materials to _____.
 - a) Recycled content
 - b) Reusable content
 - c) Reusable packaging
 - d) None of the above

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|----------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) What is green building? Explain goals of green building in detail. | 05 |
| | b) Explain different types of embodied energy & Discuss Various types of method to calculated embodied energy. | 05 |
| Q.3 | a) What are carbon credits? How do carbon credits work? | 05 |
| | b) What are funicular shells & Explain Design of funicular shells roof. | 04 |
| Q.4 | a) What are carbon footprints? Explain the activities that affects the carbon footprints of individuals? | 05 |
| | b) Explain various Criteria for selection of green material/Products with a particle example. | 04 |
| Q.5 | a) What is CSEB? Provide advantages of CSEB. | 05 |
| | b) Explain composite beam in detail. | 04 |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What are Sustainable options for food & Beverage manufacturing? | 05 |
| | b) What are eco audits & eco tools? Explain with examples? | 05 |
| Q.7 | a) Enlist and explain different types of Industrial waste. | 05 |
| | b) Elucidate Benefits of decarbonizing food & beverages. | 04 |
| Q.8 | a) Discuss use of material property chart? | 05 |
| | b) Define Recycle of waste. Discuss advantages of recycling of waste with a practical example. | 04 |
| Q.9 | a) Explain material selection strategy for choosing a Car in sustainable point of view. | 05 |
| | b) Enlist material for light weight structures & State advantage of using them. | 04 |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Binders used in CSEB are _____.
a) Cement and/or lime b) Cement and sand
c) Lime and sand d) Lime and silt
- 2) The cradle to grave embodied energy life cycle does not include _____ required to utilize the final product.
a) Initial embodied energy b) Operational energy
c) Demolition energy d) All of the above
- 3) In general _____ holds highest energy in the life cycle analysis of any product.
a) Building operations b) Transportation
c) Demolition d) None of the above
- 4) Glass is _____ recyclable.
a) 100% b) 75%
c) 50% d) 25%
- 5) Flyash bricks are composed of _____ flyash.
a) 5% - 10% b) 6% - 10%
c) 7% - 10% d) 8% - 10%
- 6) Polyester is the example of _____.
a) Thermoplastics b) Thermoset plastics
c) Thermal plastics d) None of the above
- 7) Macro plastics are having size _____.
a) < 5 mm b) > 5 mm
c) > 15 mm d) > 20 mm
- 8) Reducing Disposable Coffee cup waste would be _____ to the economy.
a) Good b) Bad
c) No effect d) None of the above
- 9) In carbon ratings, cost of car is _____ proportional to carbon emissions.
a) directly b) inversely
c) equally d) none of the above

Seat No.	
-----------------	--

Set S

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Materials: Sustainability and Usability (BTN01516)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|----------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) What is green building? Explain goals of green building in detail. | 05 |
| | b) Explain different types of embodied energy & Discuss Various types of method to calculated embodied energy. | 05 |
| Q.3 | a) What are carbon credits? How do carbon credits work? | 05 |
| | b) What are funicular shells & Explain Design of funicular shells roof. | 04 |
| Q.4 | a) What are carbon footprints? Explain the activities that affects the carbon footprints of individuals? | 05 |
| | b) Explain various Criteria for selection of green material/Products with a particle example. | 04 |
| Q.5 | a) What is CSEB? Provide advantages of CSEB. | 05 |
| | b) Explain composite beam in detail. | 04 |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What are Sustainable options for food & Beverage manufacturing? | 05 |
| | b) What are eco audits & eco tools? Explain with examples? | 05 |
| Q.7 | a) Enlist and explain different types of Industrial waste. | 05 |
| | b) Elucidate Benefits of decarbonizing food & beverages. | 04 |
| Q.8 | a) Discuss use of material property chart? | 05 |
| | b) Define Recycle of waste. Discuss advantages of recycling of waste with a practical example. | 04 |
| Q.9 | a) Explain material selection strategy for choosing a Car in sustainable point of view. | 05 |
| | b) Enlist material for light weight structures & State advantage of using them. | 04 |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) What are the reasons for resistance to change?
 - a) Fear of failure
 - b) Inertia
 - c) lack of confidence
 - d) All of the above
- 2) Which among the following is an important school of creative thinking?
 - a) Design Thinking
 - b) Behavior Thinking
 - c) Linear Thinking
 - d) Profit Thinking
- 3) Elkington introduced the sustainability concept as a "triple bottom line." What are the three important dimensions (3P's) of sustainability?
 - a) People, Planet, and Profit
 - b) People, Profit, and Product
 - c) Process, People, and Product
 - d) Profit, People, and Process
- 4) Who is not involved in the selection of ideas in idea management?
 - a) Internal experts
 - b) External experts
 - c) A mix of Internal and External Experts
 - d) Basic raw material supplier
- 5) Which one of the following is not a type of innovation according to industry system?
 - a) Product innovation
 - b) Process innovation
 - c) Personnel Innovation
 - d) Business Model innovation
- 6) Innovation is defined as: _____.
 - a) The commercialization of a new product or process
 - b) A new product or process idea
 - c) The implementation of a new production method
 - d) The invention of a new product or process
- 7) Who is an idea Champion?
 - a) The one who defeats elephant of ideas
 - b) The rider who shapes the path for elephant
 - c) The one who opens new channels for idea to move forward
 - d) All the above

- 8) An entrepreneur is someone who _____.
- a) Organizes a business
 - b) Manages a business
 - c) Takes risks
 - d) All of the above
- 9) What are the elements in the four action framework of Blue Ocean Strategy?
- a) Eliminate, Reduce, Reuse and Recycle
 - b) Eliminate, Reduce, Raise and Create
 - c) Eliminate, Recreate, Recycle and Reuse
 - d) Reduce, Reuse, Recycle and Recreate
- 10) What are the essential conditions for getting a patent for an invention?
- a) Novelty
 - b) Commercial application
 - c) Non obviousness
 - d) All the above
- 11) What are the benefits of innovations resulting from economic initiatives?
- a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above
- 12) What is the main objective of granting a patent?
- a) To encourage and develop new technology and Industry.
 - b) To create monopoly.
 - c) To make the patent commercial.
 - d) All the above
- 13) Which of the following statement is true:
- a) Patent is valid within geographical boundary.
 - b) Patent last for 15 years
 - c) The person who pays for the invention owns the patent.
 - d) None of the above
- 14) What are the benefits of innovations resulting from economic initiatives?
- a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above

Seat No.	
----------	--

Set	P
-----	---

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section I, and solve any two questions from the remaining.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) What is an Entrepreneurship? List the various type of Entrepreneurship? Explain in detail. | 06 |
| | b) What are economic theories of entrepreneurship? Explain theories of entrepreneurship in short. | 04 |
| Q.3 | a) 4 list the types of purposeful innovation and explain in detail. | 04 |
| | b) Enlist and explain the 7 Sources of Innovative Opportunity. | 05 |
| Q.4 | a) How to get the supports and grants for entrepreneurship? | 04 |
| | b) Explain the term Innovation Strategies. Enlist different types of Innovation Strategies and explain in detail with examples. | 05 |
| Q.5 | a) Explain the concept of Entrepreneurial growth and the factors affecting it. | 04 |
| | b) Define the term shifting economy and explain the key economic concepts of shifting economy. | 05 |

Section – II

- | | | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Write in short the benefits of learning and relearning process in entrepreneurship development. | 04 |
| | b) Explain the need of learning and relearning process in entrepreneurship development and also mention the four pillars of learning and relearning. | 06 |
| Q.7 | a) Mention the importance and advantages of international entrepreneurship. | 04 |
| | b) Explain the term International Entrepreneurship in brief with the 5 concepts of entrepreneurship. | 05 |
| Q.8 | a) Explain the term Innovation and Diversification? | 04 |
| | b) What is the importance of technological innovation? Explain with examples. | 05 |
| Q.9 | a) What is Problem Identification and how to check it? | 04 |
| | b) Enlist and explains various methods of Problem Identification. | 05 |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 10:00 AM To 01:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) An entrepreneur is someone who _____.
 - a) Organizes a business
 - b) Manages a business
 - c) Takes risks
 - d) All of the above
- 2) What are the elements in the four action framework of Blue Ocean Strategy?
 - a) Eliminate, Reduce, Reuse and Recycle
 - b) Eliminate, Reduce, Raise and Create
 - c) Eliminate, Recreate, Recycle and Reuse
 - d) Reduce, Reuse, Recycle and Recreate
- 3) What are the essential conditions for getting a patent for an invention?
 - a) Novelty
 - b) Commercial application
 - c) Non obviousness
 - d) All the above
- 4) What are the benefits of innovations resulting from economic initiatives?
 - a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above
- 5) What is the main objective of granting a patent?
 - a) To encourage and develop new technology and Industry.
 - b) To create monopoly.
 - c) To make the patent commercial.
 - d) All the above
- 6) Which of the following statement is true:
 - a) Patent is valid within geographical boundary.
 - b) Patent last for 15 years
 - c) The person who pays for the invention owns the patent.
 - d) None of the above

- 7) What are the benefits of innovations resulting from economic initiatives?
- a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above
- 8) What are the reasons for resistance to change?
- a) Fear of failure
 - b) Inertia
 - c) lack of confidence
 - d) All of the above
- 9) Which among the following is an important school of creative thinking?
- a) Design Thinking
 - b) Behavior Thinking
 - c) Linear Thinking
 - d) Profit Thinking
- 10) Elkington introduced the sustainability concept as a “triple bottom line.” What are the three important dimensions (3P's) of sustainability?
- a) People, Planet, and Profit
 - b) People, Profit, and Product
 - c) Process, People, and Product
 - d) Profit, People, and Process
- 11) Who is not involved in the selection of ideas in idea management?
- a) Internal experts
 - b) External experts
 - c) A mix of Internal and External Experts
 - d) Basic raw material supplier
- 12) Which one of the following is not a type of innovation according to industry system?
- a) Product innovation
 - b) Process innovation
 - c) Personnel Innovation
 - d) Business Model innovation
- 13) Innovation is defined as: _____.
- a) The commercialization of a new product or process
 - b) A new product or process idea
 - c) The implementation of a new production method
 - d) The invention of a new product or process
- 14) Who is an idea Champion?
- a) The one who defeats elephant of ideas
 - b) The rider who shapes the path for elephant
 - c) The one who opens new channels for idea to move forward
 - d) All the above

Seat No.	
----------	--

Set Q

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section I, and solve any two questions from the remaining.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | What is an Entrepreneurship? List the various type of Entrepreneurship? Explain in detail. | 06 |
| | b) | What are economic theories of entrepreneurship? Explain theories of entrepreneurship in short. | 04 |
| Q.3 | a) | 4 list the types of purposeful innovation and explain in detail. | 04 |
| | b) | Enlist and explain the 7 Sources of Innovative Opportunity. | 05 |
| Q.4 | a) | How to get the supports and grants for entrepreneurship? | 04 |
| | b) | Explain the term Innovation Strategies. Enlist different types of Innovation Strategies and explain in detail with examples. | 05 |
| Q.5 | a) | Explain the concept of Entrepreneurial growth and the factors affecting it. | 04 |
| | b) | Define the term shifting economy and explain the key economic concepts of shifting economy. | 05 |

Section – II

- | | | | |
|------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Write in short the benefits of learning and relearning process in entrepreneurship development. | 04 |
| | b) | Explain the need of learning and relearning process in entrepreneurship development and also mention the four pillars of learning and relearning. | 06 |
| Q.7 | a) | Mention the importance and advantages of international entrepreneurship. | 04 |
| | b) | Explain the term International Entrepreneurship in brief with the 5 concepts of entrepreneurship. | 05 |
| Q.8 | a) | Explain the term Innovation and Diversification? | 04 |
| | b) | What is the importance of technological innovation? Explain with examples. | 05 |
| Q.9 | a) | What is Problem Identification and how to check it? | 04 |
| | b) | Enlist and explains various methods of Problem Identification. | 05 |

Seat No.	
-------------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 10:00 AM To 01:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What are the benefits of innovations resulting from economic initiatives?
 - a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above
- 2) What is the main objective of granting a patent?
 - a) To encourage and develop new technology and Industry.
 - b) To create monopoly.
 - c) To make the patent commercial.
 - d) All the above
- 3) Which of the following statement is true:
 - a) Patent is valid within geographical boundary.
 - b) Patent last for 15 years
 - c) The person who pays for the invention owns the patent.
 - d) None of the above
- 4) What are the benefits of innovations resulting from economic initiatives?
 - a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above
- 5) What are the reasons for resistance to change?

a) Fear of failure	b) Inertia
c) lack of confidence	d) All of the above
- 6) Which among the following is an important school of creative thinking?

a) Design Thinking	b) Behavior Thinking
c) Linear Thinking	d) Profit Thinking

- 7) Elkington introduced the sustainability concept as a “triple bottom line.” What are the three important dimensions (3P's) of sustainability?
- a) People, Planet, and Profit b) People, Profit, and Product
c) Process, People, and Product d) Profit, People, and Process
- 8) Who is not involved in the selection of ideas in idea management?
- a) Internal experts
b) External experts
c) A mix of Internal and External Experts
d) Basic raw material supplier
- 9) Which one of the following is not a type of innovation according to industry system?
- a) Product innovation b) Process innovation
c) Personnel Innovation d) Business Model innovation
- 10) Innovation is defined as: _____.
- a) The commercialization of a new product or process
b) A new product or process idea
c) The implementation of a new production method
d) The invention of a new product or process
- 11) Who is an idea Champion?
- a) The one who defeats elephant of ideas
b) The rider who shapes the path for elephant
c) The one who opens new channels for idea to move forward
d) All the above
- 12) An entrepreneur is someone who _____.
- a) Organizes a business b) Manages a business
c) Takes risks d) All of the above
- 13) What are the elements in the four action framework of Blue Ocean Strategy?
- a) Eliminate, Reduce, Reuse and Recycle
b) Eliminate, Reduce, Raise and Create
c) Eliminate, Recreate, Recycle and Reuse
d) Reduce, Reuse, Recycle and Recreate
- 14) What are the essential conditions for getting a patent for an invention?
- a) Novelty b) Commercial application
c) Non obviousness d) All the above

Seat No.	
----------	--

Set **R**

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section I, and solve any two questions from the remaining.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | What is an Entrepreneurship? List the various type of Entrepreneurship? Explain in detail. | 06 |
| | b) | What are economic theories of entrepreneurship? Explain theories of entrepreneurship in short. | 04 |
| Q.3 | a) | 4 list the types of purposeful innovation and explain in detail. | 04 |
| | b) | Enlist and explain the 7 Sources of Innovative Opportunity. | 05 |
| Q.4 | a) | How to get the supports and grants for entrepreneurship? | 04 |
| | b) | Explain the term Innovation Strategies. Enlist different types of Innovation Strategies and explain in detail with examples. | 05 |
| Q.5 | a) | Explain the concept of Entrepreneurial growth and the factors affecting it. | 04 |
| | b) | Define the term shifting economy and explain the key economic concepts of shifting economy. | 05 |

Section – II

- | | | | |
|------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Write in short the benefits of learning and relearning process in entrepreneurship development. | 04 |
| | b) | Explain the need of learning and relearning process in entrepreneurship development and also mention the four pillars of learning and relearning. | 06 |
| Q.7 | a) | Mention the importance and advantages of international entrepreneurship. | 04 |
| | b) | Explain the term International Entrepreneurship in brief with the 5 concepts of entrepreneurship. | 05 |
| Q.8 | a) | Explain the term Innovation and Diversification? | 04 |
| | b) | What is the importance of technological innovation? Explain with examples. | 05 |
| Q.9 | a) | What is Problem Identification and how to check it? | 04 |
| | b) | Enlist and explains various methods of Problem Identification. | 05 |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Innovation is defined as: _____.
 - a) The commercialization of a new product or process
 - b) A new product or process idea
 - c) The implementation of a new production method
 - d) The invention of a new product or process
- 2) Who is an idea Champion?
 - a) The one who defeats elephant of ideas
 - b) The rider who shapes the path for elephant
 - c) The one who opens new channels for idea to move forward
 - d) All the above
- 3) An entrepreneur is someone who _____.

a) Organizes a business	b) Manages a business
c) Takes risks	d) All of the above
- 4) What are the elements in the four action framework of Blue Ocean Strategy?
 - a) Eliminate, Reduce, Reuse and Recycle
 - b) Eliminate, Reduce, Raise and Create
 - c) Eliminate, Recreate, Recycle and Reuse
 - d) Reduce, Reuse, Recycle and Recreate
- 5) What are the essential conditions for getting a patent for an invention?

a) Novelty	b) Commercial application
c) Non obviousness	d) All the above
- 6) What are the benefits of innovations resulting from economic initiatives?
 - a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above

- 7) What is the main objective of granting a patent?
- a) To encourage and develop new technology and Industry.
 - b) To create monopoly.
 - c) To make the patent commercial.
 - d) All the above
- 8) Which of the following statement is true:
- a) Patent is valid within geographical boundary.
 - b) Patent last for 15 years
 - c) The person who pays for the invention owns the patent.
 - d) None of the above
- 9) What are the benefits of innovations resulting from economic initiatives?
- a) Reduced expenses
 - b) Productivity gains through modernization of production tools
 - c) Ability to meet growing demand for eco-responsible and personalized products
 - d) All of the above
- 10) What are the reasons for resistance to change?
- a) Fear of failure
 - b) Inertia
 - c) lack of confidence
 - d) All of the above
- 11) Which among the following is an important school of creative thinking?
- a) Design Thinking
 - b) Behavior Thinking
 - c) Linear Thinking
 - d) Profit Thinking
- 12) Elkington introduced the sustainability concept as a “triple bottom line.” What are the three important dimensions (3P's) of sustainability?
- a) People, Planet, and Profit
 - b) People, Profit, and Product
 - c) Process, People, and Product
 - d) Profit, People, and Process
- 13) Who is not involved in the selection of ideas in idea management?
- a) Internal experts
 - b) External experts
 - c) A mix of Internal and External Experts
 - d) Basic raw material supplier
- 14) Which one of the following is not a type of innovation according to industry system?
- a) Product innovation
 - b) Process innovation
 - c) Personnel Innovation
 - d) Business Model innovation

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Managing Innovation and Entrepreneurship (BTN01517)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 10:00 AM To 01:00 PM

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section I, and solve any two questions from the remaining.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary and mention it clearly.
 - 5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | What is an Entrepreneurship? List the various type of Entrepreneurship? Explain in detail. | 06 |
| | b) | What are economic theories of entrepreneurship? Explain theories of entrepreneurship in short. | 04 |
| Q.3 | a) | 4 list the types of purposeful innovation and explain in detail. | 04 |
| | b) | Enlist and explain the 7 Sources of Innovative Opportunity. | 05 |
| Q.4 | a) | How to get the supports and grants for entrepreneurship? | 04 |
| | b) | Explain the term Innovation Strategies. Enlist different types of Innovation Strategies and explain in detail with examples. | 05 |
| Q.5 | a) | Explain the concept of Entrepreneurial growth and the factors affecting it. | 04 |
| | b) | Define the term shifting economy and explain the key economic concepts of shifting economy. | 05 |

Section – II

- | | | | |
|------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Write in short the benefits of learning and relearning process in entrepreneurship development. | 04 |
| | b) | Explain the need of learning and relearning process in entrepreneurship development and also mention the four pillars of learning and relearning. | 06 |
| Q.7 | a) | Mention the importance and advantages of international entrepreneurship. | 04 |
| | b) | Explain the term International Entrepreneurship in brief with the 5 concepts of entrepreneurship. | 05 |
| Q.8 | a) | Explain the term Innovation and Diversification? | 04 |
| | b) | What is the importance of technological innovation? Explain with examples. | 05 |
| Q.9 | a) | What is Problem Identification and how to check it? | 04 |
| | b) | Enlist and explains various methods of Problem Identification. | 05 |

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 3) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.

a) The behavior of firms	b) The activities of individual units
c) Economic aggregates	d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?

a) owning the only licensed taxicab in town	b) the United States Postal Service
c) ownership of the only ferry across Puget Sound for twenty miles	d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA

- 8)** Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9)** Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10)** _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.

a) Increase	b) Decrease
c) No change	d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 6) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency

- 8) Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9) Macroeconomic theory deals with _____.
- a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 10) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 3) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 5) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly

- 8)** Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9)** Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10)** Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Economics (BTN01508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?

a) 35 years	b) 25 years
c) 20 years	d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.

a) Ethical value	b) Moral value
c) Social value	d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 4) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 5) Trade mark _____.

a) is represented graphically
b) is capable of distinguishing the goods or services of one person from those of others
c) may include shapes of goods or combination of colors
d) All of the above
- 6) In India, the literary work is protected until _____.

a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 7) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights

- 8)** In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9)** The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

- 8) In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9) Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10) In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?
 - a) Inventor
 - b) Patent Attorney
 - c) Assignee
 - d) Patent Searcher
- 2) The following can be patented _____.
 - a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?
 - a) Trade secrets
 - b) Trademarks
 - c) Home loans
 - d) Copyrights
- 6) In which article is intellectual property rights outlined?
 - a) Article 15
 - b) Article 27
 - c) Article 13
 - d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.
 - a) 1856
 - b) 1880
 - c) 1905
 - d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN01509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 2) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 3) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 4) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 5) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 6) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 7) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 8) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 9) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 2) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 3) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 4) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 5) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 6) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 7) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 8) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 9) What is the base of social structure?

a) polity	b) government
c) economy	d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 2) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 3) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 4) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 5) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 6) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 7) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 8) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 9) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Introduction to Sociology (BTN01510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 3) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 6) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 7) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above

- 8)** Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9)** Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10)** Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 7) Aches, shallow breathing and sweating, frequent colds are _____.
a) Physical symptoms of stress
b) Behavioral symptoms of stress
c) Emotional symptoms of stress
d) Cognitive symptoms of stress
- 8) Anxiety can cause the following moods _____.
a) Irritable
b) Nervous
c) Anxious
d) All of the above
- 9) Which of the following are the physical symptoms of anxiety?
a) Racing heart
b) Sweaty palms
c) Flushed cheeks
d) All of the above
- 10) Which of the following is true about 'deep breathing relaxation technique'?
a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Stress and Coping (BTN01511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 2) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 3) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 4) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 5) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 6) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 7) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 8) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **Q**

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

Set **R**

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Commitment means _____.

a) Alignment to goals	b) Adherence to ethical principles
c) Empathy	d) All the above
- 2) The objectives of professional ethics in engineering are _____.

a) To understand the moral values that ought to guide the Engineering profession
b) To resolve the moral issues in the profession, and
c) To justify the moral judgment concerning the profession
d) All the above
- 3) Virtues are _____.

a) moral	b) ethics
c) values	d) positive and preferred values
- 4) One of the basic desires of every human being is to be always _____.

a) Happy	b) Sad
c) Laugh	d) Earn Money
- 5) Value and skills should go hand in hand _____.

a) True	b) False
c) Cannot tell	d) Wrong question
- 6) _____ are the basic Human aspirations.

a) Money	b) Relationship without money
c) Physical facility	d) Continuous happiness
- 7) Many complex social problems exist in the _____.

a) Industry/ Business	b) Society
c) Home	d) None of the above
- 8) What is Integrity?

a) Unity of thought	b) Word and deed
c) Open mindedness	d) All of these

- 9) Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10) Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

- 8) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9) Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10) One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Ethics & Human Value (BTN01512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Foundation Engineering (BTN01601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) RQD is the ratio of _____.
 - a) Sum of lengths of rock core pieces greater than 15 cm to the total length of core run
 - b) Sum of lengths of rock core pieces greater than 10 cm to the total length of core run
 - c) Sum of lengths of rock core pieces to the total length of core run
 - d) Sum of lengths of unbroken rock core pieces to the total length of core run
- 2) One of the purposes of Soil exploration is _____.
 - a) To understand the behavior of the structure
 - b) To estimate the load coming on the soil
 - c) To find the quantity and quality of water
 - d) To determine basic properties of soil
- 3) Which one of the following is not the assumption made in Terzaghi's bearing capacity analysis?
 - a) The strip footing has rough base
 - b) Failure zone do not extend above the horizontal plane through the base of the footing
 - c) Plastic zone is not fully developed
 - d) The elastic zone has straight boundaries
- 4) According to IS: 1904 - 1966, maximum safe bearing capacity for coarse sand, medium sand and fine sand are respectively (in kg/cm²) _____.

a) 4.5, 2.5, 1.5	b) 33, 16.5, 9
c) 16.5, 9.0, 4.5	d) None of these
- 5) Which one of the following is the correct Terzaghi general bearing capacity equation?

a) $q_u = C N_c + \gamma D N_q + 0.5 B \gamma N \gamma$	b) $q_u = C N_c - \gamma D N_q + 0.5 B \gamma N \gamma$
c) $q_u = C N_c + 0.5 \gamma D N_q + B \gamma N \gamma$	d) None of above

- 6) In case of sandy soil, which settlement is predominant?
a) Immediate settlement
b) Consolidation settlement
c) Secondary consolidation settlement
d) None
- 7) The bearing capacity of the soil supporting a footing of size 2m x 2m, is not affected by the water table if the water table is located beyond the depth of _____.
a) 0.5 m
b) 1 m
c) 1.5 m
d) 2 m
- 8) Efficiency of a pile group consisting of four piles by using Felds rule is _____.
a) 93.75
b) 81.25
c) 87.5
d) none
- 9) These types of soil deposits are often found near the mouths of rivers, along the perimeters of bays and beneath swamps or lagoons _____.
a) Weak/compressible soil
b) Collapsible soil
c) Expansive soil
d) Corrosive soil
- 10) The negative skin friction on a pile develops when _____.
a) The soil in which it is driven is sandy soil
b) The soil surrounding it settles more than the pile
c) The ground water table rises
d) The soil near the tip is clay
- 11) Pile driven at some inclination with vertical is called _____.
a) Batter pile
b) Raker pile
c) Both a and b
d) Neither a nor b
- 12) In stability analysis, the term mobilized shear strength is referred to as _____.
a) Shear strength
b) Maximum shear stress
c) Applied shear stress
d) None
- 13) A soil sample has external diameter as 8 cm and wall thickness of 2 mm. The area ratio in percentage will be _____.
a) 12.88
b) 18.22
c) 15.97
d) 10.80
- 14) Under reamed pile is most suitable to resist _____.
a) Compressive load
b) Lateral load
c) Uplift
d) None

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Foundation Engineering (BTN01601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 is compulsory. Solve any two from remaining questions from section-I
 2) Q.6 is compulsory. Solve any two from remaining questions from section-II
 3) Figures to the right indicate full marks.
 4) Assume additional data if required and mention it clearly.

Section – I

- Q.2** a) With a neat sketch explain bore log chart. **04**
 b) During exploration following pieces of rock cores were collected from a borehole the length cores was as follows 240 mm, 156 mm, 347 mm, 84 mm, 123 mm, 75 mm, 94 mm, 524 mm, what is the RQD for this rock and how is the quality of this rock? **06**
- Q.3** a) Enlist the difference between general shear failure and Local shear failure with suitable sketch. **04**
 b) A circular footing is resting on stiff saturated clay with $c = 125 \text{ kN/m}^2$, depth of foundation is 1.8 m Determine diameter of the footing. Take safe load on footing as 800KN and FOS = 2.5, The bulk unit weight of soil is 20 KN/m^3 , Angle of internal friction = 0, $N_c = 5.7$, $N_q = 1$ and $N_r = 0$. **05**
- Q.4** a) Explain the test procedure for standard penetration test. Also mention the corrections to be done for the observed N. **04**
 b) Immediate settlement of a square footing of dimensions 1.2 m x 1.2 m carrying a load intensity of 220 kN/m^2 is 30 mm. What would be the immediate settlement of a footing measuring 3 m x 3 m carrying a load intensity of 160 kN/m^2 . The subsoil conditions are identical in both the footing. **05**
- Q.5** a) What is expansive soil? What precautions need to be taken while designing foundation in expansive soil? **04**
 b) Enlist the ground improvement techniques. Explain any one in detail with its suitability. **05**

Section – II

- Q.6** a) Write short note on Negative skin friction. **04**
 b) Proportion a trapezoidal combined footing for 2 columns $350 \times 350 \text{ mm}$, carrying column loads of 1000 KN and 1400 KN. If the spacing between the columns is 4 m. Take the allowable soil pressure 280 KN/M^2 and the length of footing on 5 m. **06**

- Q.7** a) Write a short note on classification of piles. **04**
b) Calculate capacity of rectangular pile 0.3 m × 0.4 m of length 12 m embedded in clayey soil having $C = 45$ kPa, $\phi = 0$, $\alpha = 0.64$ (Assume suitable data if required). **05**
- Q.8** a) Explain any 4 types of cofferdams with neat sketches. **04**
b) Write a brief critical note on 'Taylor's Stability Number.' **05**
- Q.9** a) Draw a neat labelled sketch of a slope and enlist causes of failure of slope. **04**
b) What are different types of slopes failure? Explain briefly finite and infinite slopes. **05**

- 8) RQD is the ratio of _____.
- Sum of lengths of rock core pieces greater than 15 cm to the total length of core run
 - Sum of lengths of rock core pieces greater than 10 cm to the total length of core run
 - Sum of lengths of rock core pieces to the total length of core run
 - Sum of lengths of unbroken rock core pieces to the total length of core run
- 9) One of the purposes of Soil exploration is _____.
- To understand the behavior of the structure
 - To estimate the load coming on the soil
 - To find the quantity and quality of water
 - To determine basic properties of soil
- 10) Which one of the following is not the assumption made in Terzaghi's bearing capacity analysis?
- The strip footing has rough base
 - Failure zone do not extend above the horizontal plane through the base of the footing
 - Plastic zone is not fully developed
 - The elastic zone has straight boundaries
- 11) According to IS: 1904 - 1966, maximum safe bearing capacity for coarse sand, medium sand and fine sand are respectively (in kg/cm²) _____.
- 4.5, 2.5, 1.5
 - 33, 16.5, 9
 - 16.5, 9.0, 4.5
 - None of these
- 12) Which one of the following is the correct Terzaghi general bearing capacity equation?
- $q_u = C N_c + \gamma D N_q + 0.5 B \gamma N_\gamma$
 - $q_u = C N_c - \gamma D N_q + 0.5 B \gamma N_\gamma$
 - $q_u = C N_c + 0.5 \gamma D N_q + B \gamma N_\gamma$
 - None of above
- 13) In case of sandy soil, which settlement is predominant?
- Immediate settlement
 - Consolidation settlement
 - Secondary consolidation settlement
 - None
- 14) The bearing capacity of the soil supporting a footing of size 2m x 2m, is not affected by the water table if the water table is located beyond the depth of _____.
- 0.5 m
 - 1 m
 - 1.5 m
 - 2 m

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Foundation Engineering (BTN01601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 is compulsory. Solve any two from remaining questions from section-I
2) Q.6 is compulsory. Solve any two from remaining questions from section-II
3) Figures to the right indicate full marks.
4) Assume additional data if required and mention it clearly.

Section – I

- Q.2** a) With a neat sketch explain bore log chart. **04**
b) During exploration following pieces of rock cores were collected from a borehole the length cores was as follows 240 mm, 156 mm, 347 mm, 84 mm, 123 mm, 75 mm, 94 mm, 524 mm, what is the RQD for this rock and how is the quality of this rock? **06**
- Q.3** a) Enlist the difference between general shear failure and Local shear failure with suitable sketch. **04**
b) A circular footing is resting on stiff saturated clay with $c = 125 \text{ kN/m}^2$, depth of foundation is 1.8 m Determine diameter of the footing. Take safe load on footing as 800KN and FOS = 2.5, The bulk unit weight of soil is 20 KN/m^3 , Angle of internal friction = 0, $N_c = 5.7$, $N_q = 1$ and $N_r = 0$. **05**
- Q.4** a) Explain the test procedure for standard penetration test. Also mention the corrections to be done for the observed N. **04**
b) Immediate settlement of a square footing of dimensions 1.2 m x 1.2 m carrying a load intensity of 220 kN/m^2 is 30 mm. What would be the immediate settlement of a footing measuring 3 m x 3 m carrying a load intensity of 160 kN/m^2 . The subsoil conditions are identical in both the footing. **05**
- Q.5** a) What is expansive soil? What precautions need to be taken while designing foundation in expansive soil? **04**
b) Enlist the ground improvement techniques. Explain any one in detail with its suitability. **05**

Section – II

- Q.6** a) Write short note on Negative skin friction. **04**
b) Proportion a trapezoidal combined footing for 2 columns $350 \times 350 \text{ mm}$, carrying column loads of 1000 KN and 1400 KN. If the spacing between the columns is 4 m. Take the allowable soil pressure 280 KN/M^2 and the length of footing on 5 m. **06**

- Q.7** a) Write a short note on classification of piles. **04**
b) Calculate capacity of rectangular pile $0.3 \text{ m} \times 0.4 \text{ m}$ of length 12 m embedded in clayey soil having $C = 45 \text{ kPa}$, $\phi = 0$, $\alpha = 0.64$ (Assume suitable data if required). **05**
- Q.8** a) Explain any 4 types of cofferdams with neat sketches. **04**
b) Write a brief critical note on 'Taylor's Stability Number.' **05**
- Q.9** a) Draw a neat labelled sketch of a slope and enlist causes of failure of slope. **04**
b) What are different types of slopes failure? Explain briefly finite and infinite slopes. **05**

- 7) Which one of the following is not the assumption made in Terzaghi's bearing capacity analysis?
- The strip footing has rough base
 - Failure zone do not extend above the horizontal plane through the base of the footing
 - Plastic zone is not fully developed
 - The elastic zone has straight boundaries
- 8) According to IS: 1904 - 1966, maximum safe bearing capacity for coarse sand, medium sand and fine sand are respectively (in kg/cm²) _____.
- 4.5, 2.5, 1.5
 - 33, 16.5, 9
 - 16.5, 9.0, 4.5
 - None of these
- 9) Which one of the following is the correct Terzaghi general bearing capacity equation?
- $q_u = C N_c + \gamma D N_q + 0.5 B \gamma N_\gamma$
 - $q_u = C N_c - \gamma D N_q + 0.5 B \gamma N_\gamma$
 - $q_u = C N_c + 0.5 \gamma D N_q + B \gamma N_\gamma$
 - None of above
- 10) In case of sandy soil, which settlement is predominant?
- Immediate settlement
 - Consolidation settlement
 - Secondary consolidation settlement
 - None
- 11) The bearing capacity of the soil supporting a footing of size 2m x 2m, is not affected by the water table if the water table is located beyond the depth of _____.
- 0.5 m
 - 1 m
 - 1.5 m
 - 2 m
- 12) Efficiency of a pile group consisting of four piles by using Felds rule is _____.
- 93.75
 - 81.25
 - 87.5
 - none
- 13) These types of soil deposits are often found near the mouths of rivers, along the perimeters of bays and beneath swamps or lagoons _____.
- Weak/compressible soil
 - Collapsible soil
 - Expansive soil
 - Corrosive soil
- 14) The negative skin friction on a pile develops when _____.
- The soil in which it is driven is sandy soil
 - The soil surrounding it settles more than the pile
 - The ground water table rises
 - The soil near the tip is clay

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Foundation Engineering (BTN01601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 is compulsory. Solve any two from remaining questions from section-I
 2) Q.6 is compulsory. Solve any two from remaining questions from section-II
 3) Figures to the right indicate full marks.
 4) Assume additional data if required and mention it clearly.

Section – I

- Q.2** a) With a neat sketch explain bore log chart. **04**
 b) During exploration following pieces of rock cores were collected from a borehole the length cores was as follows 240 mm, 156 mm, 347 mm, 84 mm, 123 mm, 75 mm, 94 mm, 524 mm, what is the RQD for this rock and how is the quality of this rock? **06**
- Q.3** a) Enlist the difference between general shear failure and Local shear failure with suitable sketch. **04**
 b) A circular footing is resting on stiff saturated clay with $c = 125 \text{ kN/m}^2$, depth of foundation is 1.8 m Determine diameter of the footing. Take safe load on footing as 800KN and FOS = 2.5, The bulk unit weight of soil is 20 KN/m^3 , Angle of internal friction = 0, $N_c = 5.7$, $N_q = 1$ and $N_r = 0$. **05**
- Q.4** a) Explain the test procedure for standard penetration test. Also mention the corrections to be done for the observed N. **04**
 b) Immediate settlement of a square footing of dimensions 1.2 m x 1.2 m carrying a load intensity of 220 kN/m^2 is 30 mm. What would be the immediate settlement of a footing measuring 3 m x 3 m carrying a load intensity of 160 kN/m^2 . The subsoil conditions are identical in both the footing. **05**
- Q.5** a) What is expansive soil? What precautions need to be taken while designing foundation in expansive soil? **04**
 b) Enlist the ground improvement techniques. Explain any one in detail with its suitability. **05**

Section – II

- Q.6** a) Write short note on Negative skin friction. **04**
 b) Proportion a trapezoidal combined footing for 2 columns $350 \times 350 \text{ mm}$, carrying column loads of 1000 KN and 1400 KN. If the spacing between the columns is 4 m. Take the allowable soil pressure 280 KN/M^2 and the length of footing on 5 m. **06**

- Q.7** a) Write a short note on classification of piles. **04**
b) Calculate capacity of rectangular pile 0.3 m × 0.4 m of length 12 m embedded in clayey soil having $C = 45$ kPa, $\phi = 0$, $\alpha = 0.64$ (Assume suitable data if required). **05**
- Q.8** a) Explain any 4 types of cofferdams with neat sketches. **04**
b) Write a brief critical note on 'Taylor's Stability Number.' **05**
- Q.9** a) Draw a neat labelled sketch of a slope and enlist causes of failure of slope. **04**
b) What are different types of slopes failure? Explain briefly finite and infinite slopes. **05**

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Foundation Engineering (BTN01601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In case of sandy soil, which settlement is predominant?
 - a) Immediate settlement
 - b) Consolidation settlement
 - c) Secondary consolidation settlement
 - d) None
- 2) The bearing capacity of the soil supporting a footing of size 2m x 2m, is not affected by the water table if the water table is located beyond the depth of _____.

a) 0.5 m	b) 1 m
c) 1.5 m	d) 2 m
- 3) Efficiency of a pile group consisting of four piles by using Felds rule is _____.

a) 93.75	b) 81.25
c) 87.5	d) none
- 4) These types of soil deposits are often found near the mouths of rivers, along the perimeters of bays and beneath swamps or lagoons _____.

a) Weak/compressible soil	b) Collapsible soil
c) Expansive soil	d) Corrosive soil
- 5) The negative skin friction on a pile develops when _____.
 - a) The soil in which it is driven is sandy soil
 - b) The soil surrounding it settles more than the pile
 - c) The ground water table rises
 - d) The soil near the tip is clay
- 6) Pile driven at some inclination with vertical is called _____.

a) Batter pile	b) Raker pile
c) Both a and b	d) Neither a nor b
- 7) In stability analysis, the term mobilized shear strength is referred to as _____.

a) Shear strength	b) Maximum shear stress
c) Applied shear stress	d) None

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Foundation Engineering (BTN01601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.2 is compulsory. Solve any two from remaining questions from section-I
2) Q.6 is compulsory. Solve any two from remaining questions from section-II
3) Figures to the right indicate full marks.
4) Assume additional data if required and mention it clearly.

Section – I

- Q.2** a) With a neat sketch explain bore log chart. **04**
b) During exploration following pieces of rock cores were collected from a borehole the length cores was as follows 240 mm, 156 mm, 347 mm, 84 mm, 123 mm, 75 mm, 94 mm, 524 mm, what is the RQD for this rock and how is the quality of this rock? **06**
- Q.3** a) Enlist the difference between general shear failure and Local shear failure with suitable sketch. **04**
b) A circular footing is resting on stiff saturated clay with $c = 125 \text{ kN/m}^2$, depth of foundation is 1.8 m Determine diameter of the footing. Take safe load on footing as 800KN and FOS = 2.5, The bulk unit weight of soil is 20 KN/m^3 , Angle of internal friction = 0, $N_c = 5.7$, $N_q = 1$ and $N_r = 0$. **05**
- Q.4** a) Explain the test procedure for standard penetration test. Also mention the corrections to be done for the observed N. **04**
b) Immediate settlement of a square footing of dimensions 1.2 m x 1.2 m carrying a load intensity of 220 kN/m^2 is 30 mm. What would be the immediate settlement of a footing measuring 3 m x 3 m carrying a load intensity of 160 kN/m^2 . The subsoil conditions are identical in both the footing. **05**
- Q.5** a) What is expansive soil? What precautions need to be taken while designing foundation in expansive soil? **04**
b) Enlist the ground improvement techniques. Explain any one in detail with its suitability. **05**

Section – II

- Q.6** a) Write short note on Negative skin friction. **04**
b) Proportion a trapezoidal combined footing for 2 columns $350 \times 350 \text{ mm}$, carrying column loads of 1000 KN and 1400 KN. If the spacing between the columns is 4 m. Take the allowable soil pressure 280 KN/M^2 and the length of footing on 5 m. **06**

- Q.7** a) Write a short note on classification of piles. **04**
b) Calculate capacity of rectangular pile 0.3 m × 0.4 m of length 12 m embedded in clayey soil having $C = 45$ kPa, $\phi = 0$, $\alpha = 0.64$ (Assume suitable data if required). **05**
- Q.8** a) Explain any 4 types of cofferdams with neat sketches. **04**
b) Write a brief critical note on 'Taylor's Stability Number.' **05**
- Q.9** a) Draw a neat labelled sketch of a slope and enlist causes of failure of slope. **04**
b) What are different types of slopes failure? Explain briefly finite and infinite slopes. **05**

Seat No.	
-------------	--

Set

P

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydraulic Structures & Water Power Engg (BTN01602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) While planning a water supply reservoir, as compared to an irrigation reservoir, the design yield may be kept: _____.
 - a) higher
 - b) lower
 - c) medium
 - d) lower or higher, as per designer's discretion
- 2) The 'dead storage' in a dam reservoir is the available volume for collection of silt and sediment, between: _____.
 - a) bed level of the reservoir and minimum reservoir level
 - b) bed level of the reservoir and the maximum conservation level in the reservoir.
 - c) bed level of the reservoir and the normal reservoir level
 - d) none of the above
- 3) The vertical downward earthquake acceleration, $\alpha_y = 0.1$ g, acting on a gravity dam, will _____.
 - a) increase the resisting weight of the dam by 10%
 - b) decrease the resisting weight of the dam by 10%
 - c) increase the uplift by 10%
 - d) none of the above
- 4) The type of an arch dam, which generally requires 'overhangs at abutments', is of: _____.

a) constant radius type	b) variable radius type
c) constant angle type	d) none of the above
- 5) The only provision among the following, which can help control the seepage through the body of an earthen dam and, thus, to keep the phreatic line well within the dam width, is _____.
 - a) upstream impervious cutoff
 - b) drain trench along the downstream toe
 - c) relief wells
 - d) chimney drain

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydraulic Structures & Water Power Engg (BTN01602)

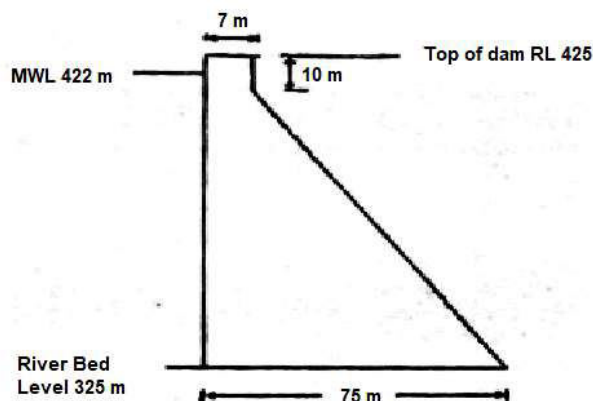
Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 3 is compulsory in section I, and solve any two questions from the remaining.
2) Question No. 9 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) What precautions and remedial measures would you undertake to control the 'seepage' through earthen dam body and through the dam foundation? **04**
b) As impounding reservoir had original storage capacity for 738 ha-m. The drainage area of the reservoir is 80 sq.km. from which, annual sediment discharges into the reservoir at the rate 0.1153 ha-m per sq.km, of the drainage area. Assuming the trap efficiency as 80 per cent, find the annual capacity loss of the reservoir in per cent per year. **05**
- Q.3** A profile of a gravity dam is shown in figure with the important levels. If the coefficient of friction between dam and foundations is 0.75, is the dam safe against sliding? Take unit weight of concrete as 24 kN/m^3 . Assume Horizontal Earthquake coefficient as 0.05 g, Vertical Earthquake coefficient as 0.1 g and there is no tail Water. Neglect uplift. Assuming $\gamma_w = 9.81 \text{ kN/m}^3$. **10**



- Q.4** a) What is meant by energy dissipater? Discuss the various methods used for energy dissipation below spillways. **04**
b) For a homogeneous earth dam 52 m high and 2 m free board, a flow net was constructed and following results were obtained. Number of potential drops = 25, Number of flow channels = 4. The dam has horizontal filter of 40 m length at its downstream end. Calculate the seepage discharge per meter length of the dam. Assume coefficient of permeability of the dam material as $3 \times 10^{-3} \text{ cm/sec}$. **05**

- Q.5** a) Classify various types of dams according to construction materials used. **04**
Distinguish clearly between rigid and non-rigid dams.
- b) Compute the discharge (with and without velocity of approach) over an ogee weir with coefficient of discharge equal to 2.4 and head of 2 m. The length of spillway is 100 m. Weir crest is 8 m above the bottom of approach channel having same width as that of spillway. **05**

Section – II

- Q.6** a) Enlist and explain different causes of failures of weirs on permeable foundations. **04**
- b) What is mean by lining a canal? Explain its need. **05**
- Q.7** a) Explain the following cross drainage works with neat sketches. **04**
i) Aqueduct and syphon aqueduct
ii) Level crossing
- b) Explain the terms. **05**
i) River training
ii) Efflorescence
iii) Water logging
Enlist objectives of river training work?
- Q.8** a) What are the typical components of the hydro-electrical scheme? Discuss the utility of each component. **04**
- b) Differentiate between. **05**
i) Bligh's and Khosla's theory
ii) Lining of existing canal and new canal
- Q.9** a) U-7-Theory **04**
Explain different methods of controlling water logging.
- b) A runoff river hydroelectric power station is proposed across a river at a site where a net head of 25 meter is available on the turbine. The river carries a sustained minimum flow of 45 cumec in dry weather. Sufficient poundage is provided to supply daily peak load of demand with a load factor of 72%. Assuming the plant efficiency to be 70%, determine the maximum generating capacity of generator to be installed at the power house. If the daily load pattern indicates 20 hours average load and 4 hours peak load, determine the poundage to be provided to supply the daily demand. **06**

Seat No.	
----------	--

Set **Q**

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydraulic Structures & Water Power Engg (BTN01602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Critical exit gradient, as introduced in Khosla's theory of design of weirs and barrages on pervious foundations, is : _____.
 - a) the left out pressure in the seeping water at the downstream end point, where it emerges out on the river bed
 - b) the rate of loss of pressure of the seeping water at the downstream emerging point, which is just enough to lift the soil gains at that point
 - c) the actual pressure gradient of the seepage, at the downstream emerging point
 - d) none of the above
- 2) The gated regulator, which is constructed in the parent canal near the site of an off taking canal, is called a : _____.
 - a) canal head regulator
 - b) distributary head regulator
 - c) cross regulator
 - d) none of the above
- 3) The canal, which may frequently encounter cross-drainage works, will be a : _____.
 - a) watershed canal
 - b) contour canal
 - c) side slope canal
 - d) none of them
- 4) Aggrading rivers are : _____.
 - a) silting rivers
 - b) scouring rivers
 - c) rivers in regime
 - d) meandering rivers
- 5) An alluvial river increases its length by meandering due to : _____.
 - a) variation of discharge
 - b) variation of land topography
 - c) both (a) and (b)
 - d) None of the above
- 6) A run off river plant for hydro power generation is essentially a : _____.
 - a) high head scheme
 - b) low head scheme
 - c) medium head scheme
 - d) any of these
- 7) A storage hydro plant essentially involves : _____.
 - a) a barrage or a weir
 - b) a dam
 - c) either (a) or (b)
 - d) neither (a) nor (b)

- 8) While planning a water supply reservoir, as compared to an irrigation reservoir, the design yield may be kept: _____.
- higher
 - lower
 - medium
 - lower or higher, as per designer's discretion
- 9) The 'dead storage' in a dam reservoir is the available volume for collection of silt and sediment, between: _____.
- bed level of the reservoir and minimum reservoir level
 - bed level of the reservoir and the maximum conservation level in the reservoir.
 - bed level of the reservoir and the normal reservoir level
 - none of the above
- 10) The vertical downward earthquake acceleration, $\alpha_y = 0.1 g$, acting on a gravity dam, will _____.
- increase the resisting weight of the dam by 10%
 - decrease the resisting weight of the dam by 10%
 - increase the uplift by 10%
 - none of the above
- 11) The type of an arch dam, which generally requires 'overhangs at abutments', is of: _____.
- constant radius type
 - variable radius type
 - constant angle type
 - none of the above
- 12) The only provision among the following, which can help control the seepage through the body of an earthen dam and, thus, to keep the phreatic line well within the dam width, is _____.
- upstream impervious cutoff
 - drain trench along the downstream toe
 - relief wells
 - chimney drain
- 13) Hydraulic jump is widely used for dissipation of energy in : _____.
- ogee spillways
 - trough spillways
 - side channel spillways
 - all of these
- 14) In vertical stoney spillway gate, the rollers are placed between the : _____.
- gate and the u/s groove guide
 - gate and the d/s groove guide
 - either (a) or (b)
 - none of them

Seat
No.

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydraulic Structures & Water Power Engg (BTN01602)

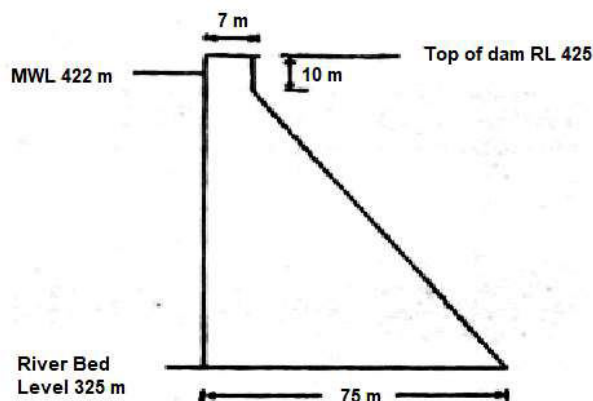
Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 3 is compulsory in section I, and solve any two questions from the remaining.
2) Question No. 9 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) What precautions and remedial measures would you undertake to control the 'seepage' through earthen dam body and through the dam foundation? **04**
b) As impounding reservoir had original storage capacity for 738 ha-m. The drainage area of the reservoir is 80 sq.km. from which, annual sediment discharges into the reservoir at the rate 0.1153 ha-m per sq.km, of the drainage area. Assuming the trap efficiency as 80 per cent, find the annual capacity loss of the reservoir in per cent per year. **05**
- Q.3** A profile of a gravity dam is shown in figure with the important levels. If the coefficient of friction between dam and foundations is 0.75, is the dam safe against sliding? Take unit weight of concrete as 24 kN/m^3 . Assume Horizontal Earthquake coefficient as 0.05 g, Vertical Earthquake coefficient as 0.1 g and there is no tail Water. Neglect uplift. Assuming $\gamma_w = 9.81 \text{ kN/m}^3$. **10**



- Q.4** a) What is meant by energy dissipater? Discuss the various methods used for energy dissipation below spillways. **04**
b) For a homogeneous earth dam 52 m high and 2 m free board, a flow net was constructed and following results were obtained. Number of potential drops = 25, Number of flow channels = 4. The dam has horizontal filter of 40 m length at its downstream end. Calculate the seepage discharge per meter length of the dam. Assume coefficient of permeability of the dam material as $3 \times 10^{-3} \text{ cm/sec}$. **05**

- Q.5** a) Classify various types of dams according to construction materials used. **04**
Distinguish clearly between rigid and non-rigid dams.
- b) Compute the discharge (with and without velocity of approach) over an ogee weir with coefficient of discharge equal to 2.4 and head of 2 m. The length of spillway is 100 m. Weir crest is 8 m above the bottom of approach channel having same width as that of spillway. **05**

Section – II

- Q.6** a) Enlist and explain different causes of failures of weirs on permeable foundations. **04**
- b) What is mean by lining a canal? Explain its need. **05**
- Q.7** a) Explain the following cross drainage works with neat sketches. **04**
i) Aqueduct and syphon aqueduct
ii) Level crossing
- b) Explain the terms. **05**
i) River training
ii) Efflorescence
iii) Water logging
Enlist objectives of river training work?
- Q.8** a) What are the typical components of the hydro-electrical scheme? Discuss the utility of each component. **04**
- b) Differentiate between. **05**
i) Bligh's and Khosla's theory
ii) Lining of existing canal and new canal
- Q.9** a) U-7-Theory **04**
Explain different methods of controlling water logging.
- b) A runoff river hydroelectric power station is proposed across a river at a site where a net head of 25 meter is available on the turbine. The river carries a sustained minimum flow of 45 cumec in dry weather. Sufficient poundage is provided to supply daily peak load of demand with a load factor of 72%. Assuming the plant efficiency to be 70%, determine the maximum generating capacity of generator to be installed at the power house. If the daily load pattern indicates 20 hours average load and 4 hours peak load, determine the poundage to be provided to supply the daily demand. **06**

- 7) The vertical downward earthquake acceleration, $\alpha_y = 0.1 g$, acting on a gravity dam, will _____.
- increase the resisting weight of the dam by 10%
 - decrease the resisting weight of the dam by 10%
 - increase the uplift by 10%
 - none of the above
- 8) The type of an arch dam, which generally requires 'overhangs at abutments', is of: _____.
- constant radius type
 - variable radius type
 - constant angle type
 - none of the above
- 9) The only provision among the following, which can help control the seepage through the body of an earthen dam and, thus, to keep the phreatic line well within the dam width, is _____.
- upstream impervious cutoff
 - drain trench along the downstream toe
 - relief wells
 - chimney drain
- 10) Hydraulic jump is widely used for dissipation of energy in : _____.
- ogee spillways
 - trough spillways
 - side channel spillways
 - all of these
- 11) In vertical stoney spillway gate, the rollers are placed between the : _____.
- gate and the u/s groove guide
 - gate and the d/s groove guide
 - either (a) or (b)
 - none of them
- 12) Critical exit gradient, as introduced in Khosla's theory of design of weirs and barrages on pervious foundations, is : _____.
- the left out pressure in the seeping water at the downstream end point, where it emerges out on the river bed
 - the rate of loss of pressure of the seeping water at the downstream emerging point, which is just enough to lift the soil gains at that point
 - the actual pressure gradient of the seepage, at the downstream emerging point
 - none of the above
- 13) The gated regulator, which is constructed in the parent canal near the site of an off taking canal, is called a : _____.
- canal head regulator
 - distributary head regulator
 - cross regulator
 - none of the above
- 14) The canal, which may frequently encounter cross-drainage works, will be a : _____.
- watershed canal
 - contour canal
 - side slope canal
 - none of them

Seat
No.

--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydraulic Structures & Water Power Engg (BTN01602)

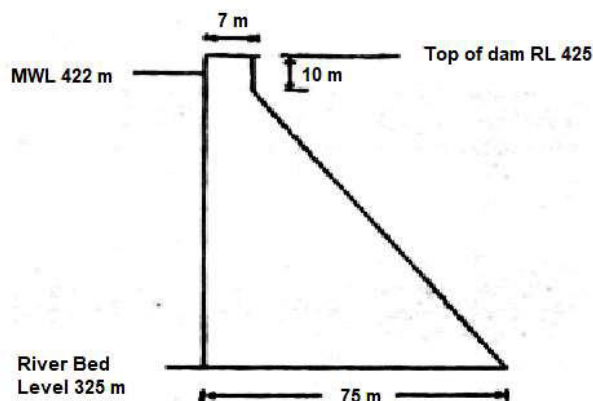
Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 3 is compulsory in section I, and solve any two questions from the remaining.
2) Question No. 9 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) What precautions and remedial measures would you undertake to control the 'seepage' through earthen dam body and through the dam foundation? **04**
b) As impounding reservoir had original storage capacity for 738 ha-m. The drainage area of the reservoir is 80 sq.km. from which, annual sediment discharges into the reservoir at the rate 0.1153 ha-m per sq.km, of the drainage area. Assuming the trap efficiency as 80 per cent, find the annual capacity loss of the reservoir in per cent per year. **05**
- Q.3** A profile of a gravity dam is shown in figure with the important levels. If the coefficient of friction between dam and foundations is 0.75, is the dam safe against sliding? Take unit weight of concrete as 24 kN/m^3 . Assume Horizontal Earthquake coefficient as 0.05 g, Vertical Earthquake coefficient as 0.1 g and there is no tail Water. Neglect uplift. Assuming $\gamma_w = 9.81 \text{ kN/m}^3$. **10**



- Q.4** a) What is meant by energy dissipater? Discuss the various methods used for energy dissipation below spillways. **04**
b) For a homogeneous earth dam 52 m high and 2 m free board, a flow net was constructed and following results were obtained. Number of potential drops = 25, Number of flow channels = 4. The dam has horizontal filter of 40 m length at its downstream end. Calculate the seepage discharge per meter length of the dam. Assume coefficient of permeability of the dam material as $3 \times 10^{-3} \text{ cm/sec}$. **05**

- Q.5** a) Classify various types of dams according to construction materials used. **04**
Distinguish clearly between rigid and non-rigid dams.
- b) Compute the discharge (with and without velocity of approach) over an ogee weir with coefficient of discharge equal to 2.4 and head of 2 m. The length of spillway is 100 m. Weir crest is 8 m above the bottom of approach channel having same width as that of spillway. **05**

Section – II

- Q.6** a) Enlist and explain different causes of failures of weirs on permeable foundations. **04**
- b) What is mean by lining a canal? Explain its need. **05**
- Q.7** a) Explain the following cross drainage works with neat sketches. **04**
i) Aqueduct and syphon aqueduct
ii) Level crossing
- b) Explain the terms. **05**
i) River training
ii) Efflorescence
iii) Water logging
Enlist objectives of river training work?
- Q.8** a) What are the typical components of the hydro-electrical scheme? Discuss the utility of each component. **04**
- b) Differentiate between. **05**
i) Bligh's and Khosla's theory
ii) Lining of existing canal and new canal
- Q.9** a) U-7-Theory **04**
Explain different methods of controlling water logging.
- b) A runoff river hydroelectric power station is proposed across a river at a site where a net head of 25 meter is available on the turbine. The river carries a sustained minimum flow of 45 cumec in dry weather. Sufficient poundage is provided to supply daily peak load of demand with a load factor of 72%. Assuming the plant efficiency to be 70%, determine the maximum generating capacity of generator to be installed at the power house. If the daily load pattern indicates 20 hours average load and 4 hours peak load, determine the poundage to be provided to supply the daily demand. **06**

- 8) A run off river plant for hydro power generation is essentially a : _____.
- a) high head scheme b) low head scheme
c) medium head scheme d) any of these
- 9) A storage hydro plant essentially involves : _____.
- a) a barrage or a weir b) a dam
c) either (a) or (b) d) neither (a) nor (b)
- 10) While planning a water supply reservoir, as compared to an irrigation reservoir, the design yield may be kept: _____.
- a) higher
b) lower
c) medium
d) lower or higher, as per designer's discretion
- 11) The 'dead storage' in a dam reservoir is the available volume for collection of silt and sediment, between: _____.
- a) bed level of the reservoir and minimum reservoir level
b) bed level of the reservoir and the maximum conservation level in the reservoir.
c) bed level of the reservoir and the normal reservoir level
d) none of the above
- 12) The vertical downward earthquake acceleration, $\alpha_y = 0.1$ g, acting on a gravity dam, will _____.
- a) increase the resisting weight of the dam by 10%
b) decrease the resisting weight of the dam by 10%
c) increase the uplift by 10%
d) none of the above
- 13) The type of an arch dam, which generally requires 'overhangs at abutments', is of: _____.
- a) constant radius type b) variable radius type
c) constant angle type d) none of the above
- 14) The only provision among the following, which can help control the seepage through the body of an earthen dam and, thus, to keep the phreatic line well within the dam width, is _____.
- a) upstream impervious cutoff
b) drain trench along the downstream toe
c) relief wells
d) chimney drain

Seat
No.

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Hydraulic Structures & Water Power Engg (BTN01602)

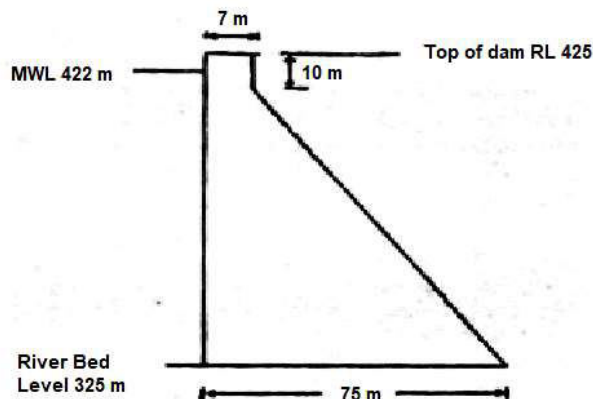
Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 3 is compulsory in section I, and solve any two questions from the remaining.
2) Question No. 9 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) What precautions and remedial measures would you undertake to control the 'seepage' through earthen dam body and through the dam foundation? **04**
b) As impounding reservoir had original storage capacity for 738 ha-m. The drainage area of the reservoir is 80 sq.km. from which, annual sediment discharges into the reservoir at the rate 0.1153 ha-m per sq.km, of the drainage area. Assuming the trap efficiency as 80 per cent, find the annual capacity loss of the reservoir in per cent per year. **05**
- Q.3** A profile of a gravity dam is shown in figure with the important levels. If the coefficient of friction between dam and foundations is 0.75, is the dam safe against sliding? Take unit weight of concrete as 24 kN/m^3 . Assume Horizontal Earthquake coefficient as 0.05 g, Vertical Earthquake coefficient as 0.1 g and there is no tail Water. Neglect uplift. Assuming $\gamma_w = 9.81 \text{ kN/m}^3$. **10**



- Q.4** a) What is meant by energy dissipater? Discuss the various methods used for energy dissipation below spillways. **04**
b) For a homogeneous earth dam 52 m high and 2 m free board, a flow net was constructed and following results were obtained. Number of potential drops = 25, Number of flow channels = 4. The dam has horizontal filter of 40 m length at its downstream end. Calculate the seepage discharge per meter length of the dam. Assume coefficient of permeability of the dam material as $3 \times 10^{-3} \text{ cm/sec}$. **05**

- Q.5** a) Classify various types of dams according to construction materials used. **04**
Distinguish clearly between rigid and non-rigid dams.
- b) Compute the discharge (with and without velocity of approach) over an ogee weir with coefficient of discharge equal to 2.4 and head of 2 m. The length of spillway is 100 m. Weir crest is 8 m above the bottom of approach channel having same width as that of spillway. **05**

Section – II

- Q.6** a) Enlist and explain different causes of failures of weirs on permeable foundations. **04**
- b) What is mean by lining a canal? Explain its need. **05**
- Q.7** a) Explain the following cross drainage works with neat sketches. **04**
i) Aqueduct and syphon aqueduct
ii) Level crossing
- b) Explain the terms. **05**
i) River training
ii) Efflorescence
iii) Water logging
Enlist objectives of river training work?
- Q.8** a) What are the typical components of the hydro-electrical scheme? Discuss the utility of each component. **04**
- b) Differentiate between. **05**
i) Bligh's and Khosla's theory
ii) Lining of existing canal and new canal
- Q.9** a) U-7-Theory **04**
Explain different methods of controlling water logging.
- b) A runoff river hydroelectric power station is proposed across a river at a site where a net head of 25 meter is available on the turbine. The river carries a sustained minimum flow of 45 cumec in dry weather. Sufficient poundage is provided to supply daily peak load of demand with a load factor of 72%. Assuming the plant efficiency to be 70%, determine the maximum generating capacity of generator to be installed at the power house. If the daily load pattern indicates 20 hours average load and 4 hours peak load, determine the poundage to be provided to supply the daily demand. **06**

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Design of Bridges (BTN01610)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two lane bridge for following data: **10**
- a) Effective span – 7 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A (two lane)
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.82$
- Q.3** Answer the following.
- a) Enlist the various loads to be considered for the analysis of bridges. **05**
 Explain any one in detail.
 - b) Give the detail classification of Bridges. **04**
- Q.4** A RCC 'T' beam type bridge having deck slab of 200 mm thick, wearing coat of 100 mm thick, four longitudinal girders and five cross girders. Design the exterior longitudinal girder. Use following additional data, **09**
- a) Carriage way width –10 m
 - b) Span of bridge –16 m
 - c) Live Load – IRC class AA Tracked
 - d) Kerb – 600 mm wide, 400 mm deep
 - e) Web thickness for Longitudinal and cross girder–300 mm
 - f) Longitudinal Girder spacing – 300 mm
 - g) Use M-25 concrete and Fe-415 steel
- Q.5** Design a slab panel having size of 3 m x 4.5 m. Consider IRC class AA tracked loading. Use Pigeaud's chart. Consider thickness of slab as 220 mm and wearing coat thickness as 85 mm. Use M- 30 concrete and Fe- 415 steel. Refer Fig 1 and 2 for Pigeuad's coefficient. **09**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier- 1.8 m, Height of pier up to springing level - 6 m, C/C distance of bearing- 1.2m, Side batter 1:12, HFL - 1.2 m below the bearing level, Span of bridge -12 m, carriage way width- 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 650 kN, Braking force- 120 kN, wind pressure on pier- 2 kN/m². Material of pier = M20 concrete. Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** Verify the suitability of abutment as shown in the fig 7.1. Use following data **09**
 Density of soil - 18 kN/m³, Friction angle of soil (ϕ) = 30°
 Coefficient of friction - 0.5, Live load reaction at bearing-500 kN, DL reaction from super structure - 2200 kN

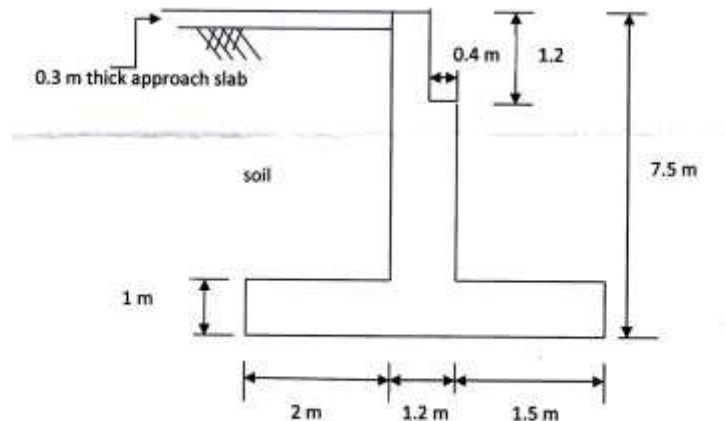


Fig no 7.1

- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 170 kN,
 Vertical load (dynamic) = 50 kN,
 Horizontal force = 90 kN
 Modulus of rigidity of elastomer – 1.1 N/mm²
 coefficient of friction = 0.4
- b) Write a note on inspection of bridges. **04**
- Q.9** Write a note on following (Any three) **09**
- Types of foundation for bridges
 - Types of bridge pier with their suitability
 - Expansion joints
 - Instruments required for bridge inspection

Seat No.	
-------------	--

Set

Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Design of Bridges (BTN01610)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two lane bridge for following data: **10**
- a) Effective span – 7 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A (two lane)
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.82$
- Q.3** Answer the following.
- a) Enlist the various loads to be considered for the analysis of bridges. **05**
Explain any one in detail.
 - b) Give the detail classification of Bridges. **04**
- Q.4** A RCC 'T' beam type bridge having deck slab of 200 mm thick, wearing coat of 100 mm thick, four longitudinal girders and five cross girders. Design the exterior longitudinal girder. Use following additional data, **09**
- a) Carriage way width –10 m
 - b) Span of bridge –16 m
 - c) Live Load – IRC class AA Tracked
 - d) Kerb – 600 mm wide, 400 mm deep
 - e) Web thickness for Longitudinal and cross girder–300 mm
 - f) Longitudinal Girder spacing – 300 mm
 - g) Use M-25 concrete and Fe-415 steel
- Q.5** Design a slab panel having size of 3 m x 4.5 m. Consider IRC class AA tracked loading. Use Pigeaud's chart. Consider thickness of slab as 220 mm and wearing coat thickness as 85 mm. Use M- 30 concrete and Fe- 415 steel. Refer Fig 1 and 2 for Pigeuad's coefficient. **09**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier- 1.8 m, Height of pier up to springing level - 6 m, C/C distance of bearing- 1.2m, Side batter 1:12, HFL - 1.2 m below the bearing level, Span of bridge -12 m, carriage way width- 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 650 kN, Braking force- 120 kN, wind pressure on pier- 2 kN/m². Material of pier = M20 concrete. Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** Verify the suitability of abutment as shown in the fig 7.1. Use following data **09**
 Density of soil - 18 kN/m³, Friction angle of soil (ϕ) = 30°
 Coefficient of friction - 0.5, Live load reaction at bearing-500 kN, DL reaction from super structure - 2200 kN

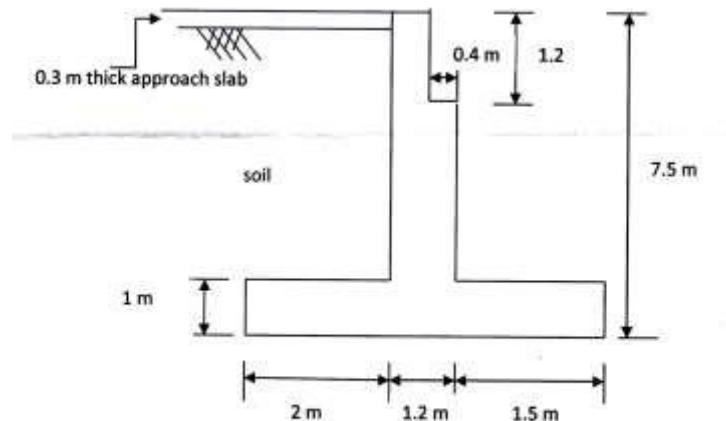


Fig no 7.1

- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 170 kN,
 Vertical load (dynamic) = 50 kN,
 Horizontal force = 90 kN
 Modulus of rigidity of elastomer – 1.1 N/mm²
 coefficient of friction = 0.4
- b) Write a note on inspection of bridges. **04**
- Q.9** Write a note on following (Any three) **09**
- Types of foundation for bridges
 - Types of bridge pier with their suitability
 - Expansion joints
 - Instruments required for bridge inspection

Seat No.	
-------------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Design of Bridges (BTN01610)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two lane bridge for following data: **10**
- a) Effective span – 7 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A (two lane)
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.82$
- Q.3** Answer the following.
- a) Enlist the various loads to be considered for the analysis of bridges. **05**
 Explain any one in detail.
 - b) Give the detail classification of Bridges. **04**
- Q.4** A RCC 'T' beam type bridge having deck slab of 200 mm thick, wearing coat of 100 mm thick, four longitudinal girders and five cross girders. Design the exterior longitudinal girder. Use following additional data, **09**
- a) Carriage way width – 10 m
 - b) Span of bridge – 16 m
 - c) Live Load – IRC class AA Tracked
 - d) Kerb – 600 mm wide, 400 mm deep
 - e) Web thickness for Longitudinal and cross girder – 300 mm
 - f) Longitudinal Girder spacing – 300 mm
 - g) Use M-25 concrete and Fe-415 steel
- Q.5** Design a slab panel having size of 3 m x 4.5 m. Consider IRC class AA tracked loading. Use Pigeaud's chart. Consider thickness of slab as 220 mm and wearing coat thickness as 85 mm. Use M- 30 concrete and Fe- 415 steel. Refer Fig 1 and 2 for Pigeuad's coefficient. **09**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier- 1.8 m, Height of pier up to springing level - 6 m, C/C distance of bearing- 1.2m, Side batter 1:12, HFL - 1.2 m below the bearing level, Span of bridge -12 m, carriage way width- 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 650 kN, Braking force- 120 kN, wind pressure on pier- 2 kN/m². Material of pier = M20 concrete. Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** Verify the suitability of abutment as shown in the fig 7.1. Use following data **09**
 Density of soil - 18 kN/m³, Friction angle of soil (ϕ) = 30°
 Coefficient of friction - 0.5, Live load reaction at bearing-500 kN, DL reaction from super structure - 2200 kN

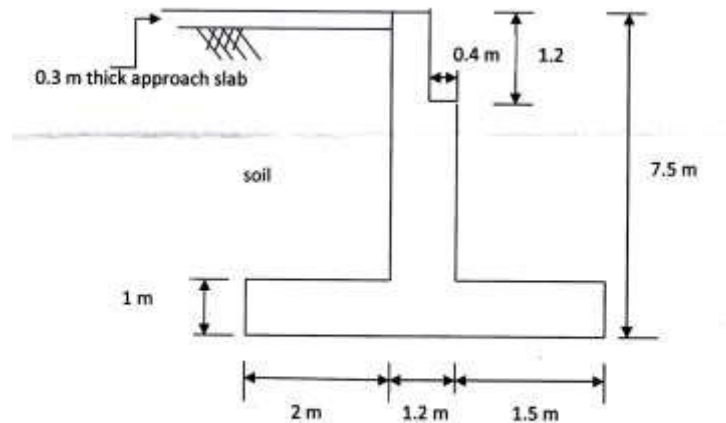


Fig no 7.1

- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 170 kN,
 Vertical load (dynamic) = 50 kN,
 Horizontal force = 90 kN
 Modulus of rigidity of elastomer – 1.1 N/mm²
 coefficient of friction = 0.4
- b) Write a note on inspection of bridges. **04**
- Q.9** Write a note on following (Any three) **09**
- Types of foundation for bridges
 - Types of bridge pier with their suitability
 - Expansion joints
 - Instruments required for bridge inspection

- 9) Continuous girder requires _____.
- a) Fixed bearing on all supports
 - b) Expansion bearing on all supports
 - c) Expansion bearing on all support except at one
 - d) Fixed bearing on all support except at one
- 10) The minimum width of carriage way for a two lane bridge is _____.
- a) 4.25m
 - b) 10m
 - c) 6m
 - d) 7.5m
- 11) _____ is the minimum grade of concrete for prestressed concrete bridges.
- a) M-30
 - b) M-20
 - c) M-40
 - d) M-25
- 12) The minimum width of carriage way for a single lane bridge is _____.
- a) 4.25m
 - b) 6M
 - c) 10m
 - d) 7.5m
- 13) As per IRC-21, minimum clear cover to any reinforcement bar is _____.
- a) 40mm
 - b) 25mm
 - c) 50mm
 - d) 30mm
- 14) As per crack control criteria of IRC-21, the spacing of main reinforced bar shall not exceed _____.
- a) 100mm
 - b) 300mm
 - c) 200mm
 - d) 150mm

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Design of Bridges (BTN01610)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two lane bridge for following data: **10**
- a) Effective span – 7 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A (two lane)
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.82$
- Q.3** Answer the following.
- a) Enlist the various loads to be considered for the analysis of bridges. **05**
 Explain any one in detail.
 - b) Give the detail classification of Bridges. **04**
- Q.4** A RCC 'T' beam type bridge having deck slab of 200 mm thick, wearing coat of 100 mm thick, four longitudinal girders and five cross girders. Design the exterior longitudinal girder. Use following additional data, **09**
- a) Carriage way width – 10 m
 - b) Span of bridge – 16 m
 - c) Live Load – IRC class AA Tracked
 - d) Kerb – 600 mm wide, 400 mm deep
 - e) Web thickness for Longitudinal and cross girder – 300 mm
 - f) Longitudinal Girder spacing – 300 mm
 - g) Use M-25 concrete and Fe-415 steel
- Q.5** Design a slab panel having size of 3 m x 4.5 m. Consider IRC class AA tracked loading. Use Pigeaud's chart. Consider thickness of slab as 220 mm and wearing coat thickness as 85 mm. Use M- 30 concrete and Fe- 415 steel. Refer Fig 1 and 2 for Pigeuad's coefficient. **09**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier- 1.8 m, Height of pier up to springing level - 6 m, C/C distance of bearing- 1.2m, Side batter 1:12, HFL - 1.2 m below the bearing level, Span of bridge -12 m, carriage way width- 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 650 kN, Braking force- 120 kN, wind pressure on pier- 2 kN/m². Material of pier = M20 concrete. Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** Verify the suitability of abutment as shown in the fig 7.1. Use following data **09**
 Density of soil - 18 kN/m³, Friction angle of soil (ϕ) = 30°
 Coefficient of friction - 0.5, Live load reaction at bearing-500 kN, DL reaction from super structure - 2200 kN

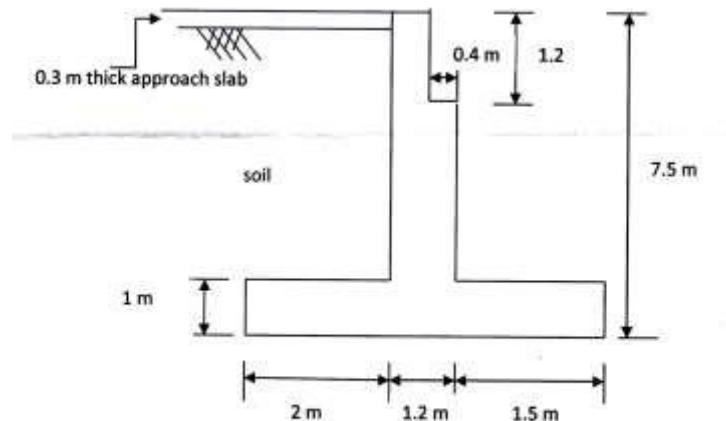


Fig no 7.1

- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 170 kN,
 Vertical load (dynamic) = 50 kN,
 Horizontal force = 90 kN
 Modulus of rigidity of elastomer – 1.1 N/mm²
 coefficient of friction = 0.4
- b) Write a note on inspection of bridges. **04**
- Q.9** Write a note on following (Any three) **09**
- Types of foundation for bridges
 - Types of bridge pier with their suitability
 - Expansion joints
 - Instruments required for bridge inspection

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q .1 Choose the correct alternatives from the options. 14

- 1) In the ESWL concept, the total stress due to the dual wheels up to a depth of $d/2$, the ESWL is considered to be equivalent to the magnitude of _____.

a) P	b) 2P
c) 0.5P	d) 4P
- 2) In flexible pavement, the load dispersion through granular layers by _____.
 - a) Slab action
 - b) Grain to Grain contact
 - c) Both slab action and grain-to-grain contact
 - d) Only Slab action
- 3) In flexible pavement, which layer has got highest elastic modulus?

a) Subgrade	b) Granular Subbase
c) Wet Mix Macadam	d) Bituminous Concrete
- 4) The axle loads and the number of axles per heavy vehicle are converted in terms of the number of standard axles loads per vehicle is known as, _____.
 - a) Lane Distribution Factor
 - b) Vehicle Damage Factor
 - c) Directional Distribution Factor
 - d) Equivalent Single Wheel Load Factor
- 5) The vehicle carries a rear single axle weight of 17 tonnes, what is the EWLF? (Use the fourth power rule and consider standard axle weight as 8.16tonne)

a) 15.78	b) 14.83
c) 16.78	d) 18.83
- 6) The ratio of flexural stress to its flexural strength is called _____.

a) Compressive Strength	b) Tensile Strength
c) Stress Ratio	d) Flexural strength

- 7) In CC pavement design, if the stress ratio due to design load is less than 0.44, then _____.
 a) Pavement slab is safe
 b) No warping stresses
 c) No possibility of fatigue failure due to repeated application of load
 d) No friction stresses at the bottom of the slab
- 8) In CC pavement, no warping condition of the pavement is called when _____.
 a) The temperature at the top and bottom of the CC pavement slab will be equal
 b) The temperature at the top of CC pavement is more the bottom
 c) The temperature at the bottom of CC pavement is more the top
 d) At the middle third of the CC pavement temperature is high
- 9) In rigid pavement, the longitudinal joint is provided when:
 a) The width of the pavement exceeds 10m
 b) The width of the pavement exceeds 4.5m
 c) The width of the pavement exceeds 7m
 d) The width of the pavement exceeds 15m
- 10) What nature of warping stresses are generated in a CC pavement during a summer mid day?
 a) Tensile in bottom fibre and compressive in top fibre
 b) Compressive in both top and bottom fibre
 c) Tensile in both top and bottom fibre
 d) Compressive in bottom fibre and tensile in top fibre
- 11) The modulus of the subgrade reaction is given by _____.
 a) $K = \frac{P}{\Delta}$
 b) $K = Px\Delta$
 c) $K = P + \Delta$
 d) $K = \Delta$
- 12) Know the load, warping, and frictional stresses on cement concrete pavement slabs as 220N/mm², 300N/mm², and 10N/mm² respectively, the critical combination of stresses during the summer season is _____.
 a) 300N/mm²
 b) 530N/mm²
 c) 520N/mm²
 d) 510N/mm²
- 13) What is the equivalent radius of the resisting section of a 20cm thick slab, given that the radius of the contact area is 15cm?
 a) 14.07cm
 b) 15.07cm
 c) 16.07cm
 d) 17.07cm
- 14) The longitudinal joints in cement concrete pavements are constructed with suitable _____.
 a) Tie bars
 b) Dowel bars
 c) Shear rods
 d) Small spacing

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume any missing data suitably and mention it clearly.

Section – I

Q.2 Answer Any Two questions. 14

- a) Draw a neat sketch of flexible pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) What is VDF? Determine the Equivalent Wheel Load Factor or VDF value of the following two axle loads in terms of the standard axle load of 8.16tonne.
 - i) LCV with a rear axle load of 4.0t
 - ii) HCV with a rear axle load of 16t
- c) A flexible pavement of thickness 48cm is laid over a subgrade. A circular load of 16cm with a uniform contact pressure of 6.5kg/cm^2 is applied. Assume the elastic modulus of the subgrade as well as the pavement layer to be 900kg/cm^2 . Assuming a homogenous elastic single-layer system determine the deflection of the pavement surface under the center of the load. Use the Deflection Factor chart given in Fig-I.

Q.4 Answer Any Two questions 14

- a) Draw a neat sketch of rigid pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) Find ESWL at depths of 50mm, 200mm, and 400mm for a dual wheel carrying 2044 kN each. The center-to-center tyre spacing is 200mm and the distance between the walls of the two tyres is 100mm. Use (log) equation to calculate ESWL.
- c) Plate bearing tests were conducted using a 30cm diameter plate on soil subgrade and over a base course of thickness 45cm. The pressure yielded at 0.5cm deflection on the subgrade and base course was 1.25kg/cm^2 and 8kg/cm^2 respectively. Design the thickness requirement of flexible pavement for a wheel load of 5100kg with tyre pressure of 8.0kg/cm^2 for an allowable deflection of 0.5cm using the Burmister two-layer deflection factor chart shown in Fig-II.

Section – II

Q.5 Answer Any Two questions.**14**

- a) Explain the different joints provided with their functions in CC pavements.
- b) With a diagram explain the working principle of Benkelman beam for measurement of pavement deflection.
- c) C.C. Pavement is constructed using the following data:
- i) Modulus of elasticity $3.3 \times 10^5 \text{ kg/cm}^2$
 - ii) Poisson's ratio=0.15
 - iii) Thickness of CC pavement = 18 cm
 - iv) Modulus of subgrade reaction- 25kg/cm^3
 - v) Wheel load = 4100 kg
 - vi) Radius of loaded area = 12 cm
- Calculate stresses at the Interior, Edge, and corner by Westergaard's method.

Q.6 Answer Any Two questions**14**

- a) Determine the warping stresses at the interior, edge, and corner of a 25cm thick cement concrete pavement with transverse joints at 5.0m intervals and longitudinal joints at 3.6m intervals. The modulus of subgrade reaction K is 6.9kg/cm^3 and the radius of the loaded area is 15cm. Assume the temperature differential during the day to be 0.6°C per cm slab thickness (for warping stress at interior and edge) and a maximum temperature differential of 0.4°C per cm slab thickness during the night (for warping stress at the corner). Assume $e=10 \times 10^{-6}$ per $^\circ\text{C}$, $E=3 \times 10^5 \text{ kg/cm}^2$, $\mu=0.15$. Use the Bradbury chart given in Figure III.
- b) Write a short note any two:
- i) Factors affecting flexible pavement design
 - ii) Layered systems concepts of Pavement Design
 - iii) Factors Affecting Rigid Pavement Design
 - iv) Principles of Rigid Pavement Design as per IRC-58-2015
- c) The rebound deflection values determined at 15 spots are given below. Determine the values of:
- i) mean deflection
 - ii) standard deviation and
 - iii) characteristic deflection for an important highway with heavy traffic
- Rebound deflection values in mm: 1.40, 1.32, 1.25, 1.35, 1.48, 1.60, 1.65, 1.55, 1.45, 1.40, 1.36, 1.46, 1.50, 1.52, 1.45

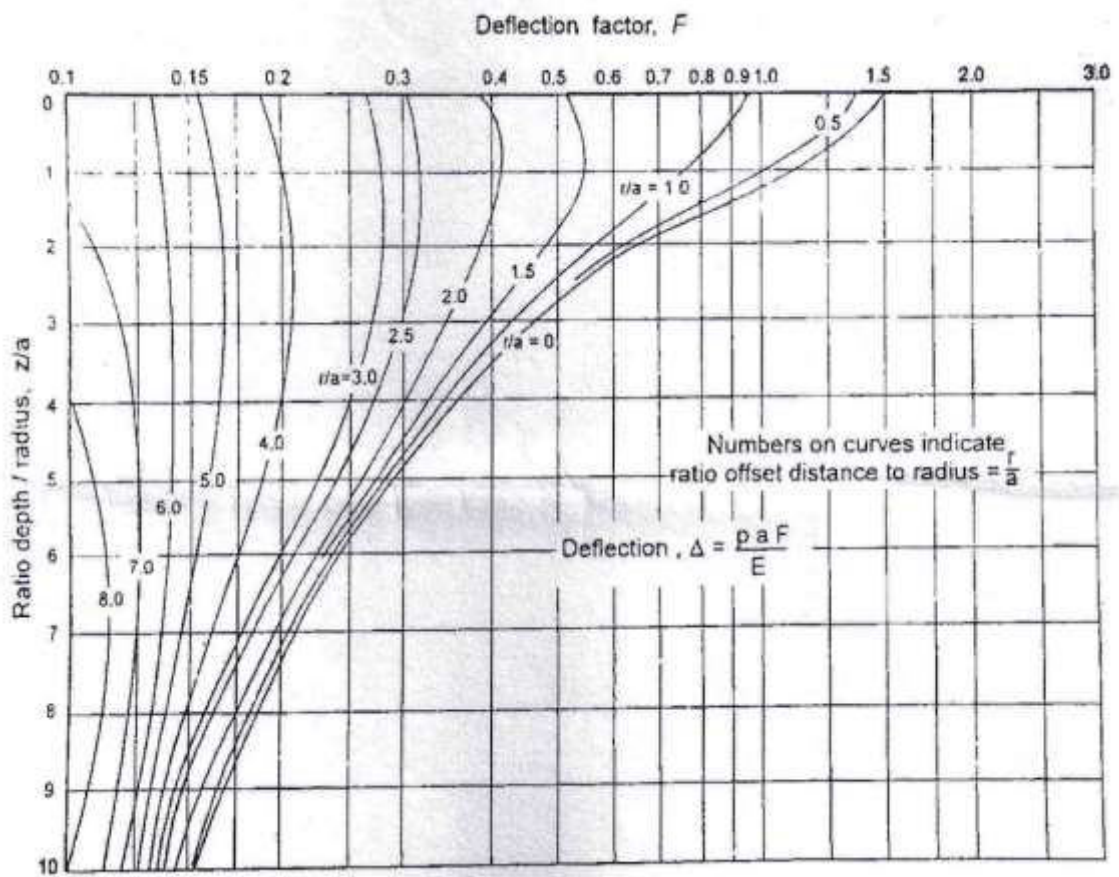


Figure-I-Deflection Factor Chart (Single Layer)

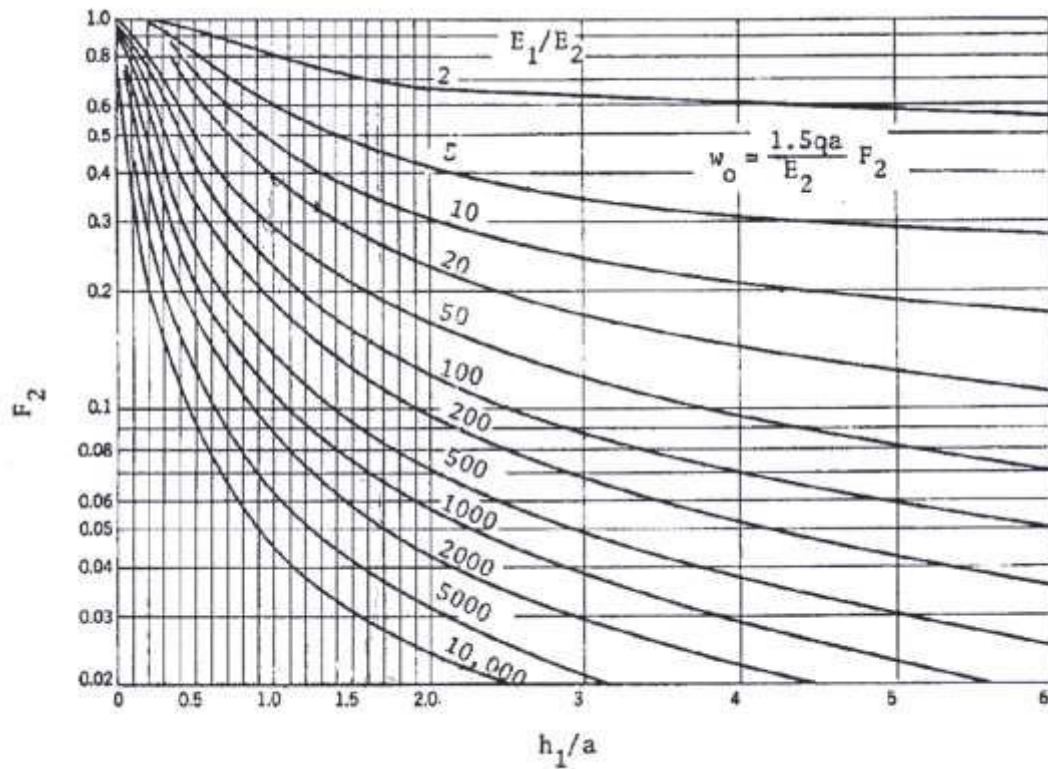


Figure-II-Burmister two-layer deflection chart

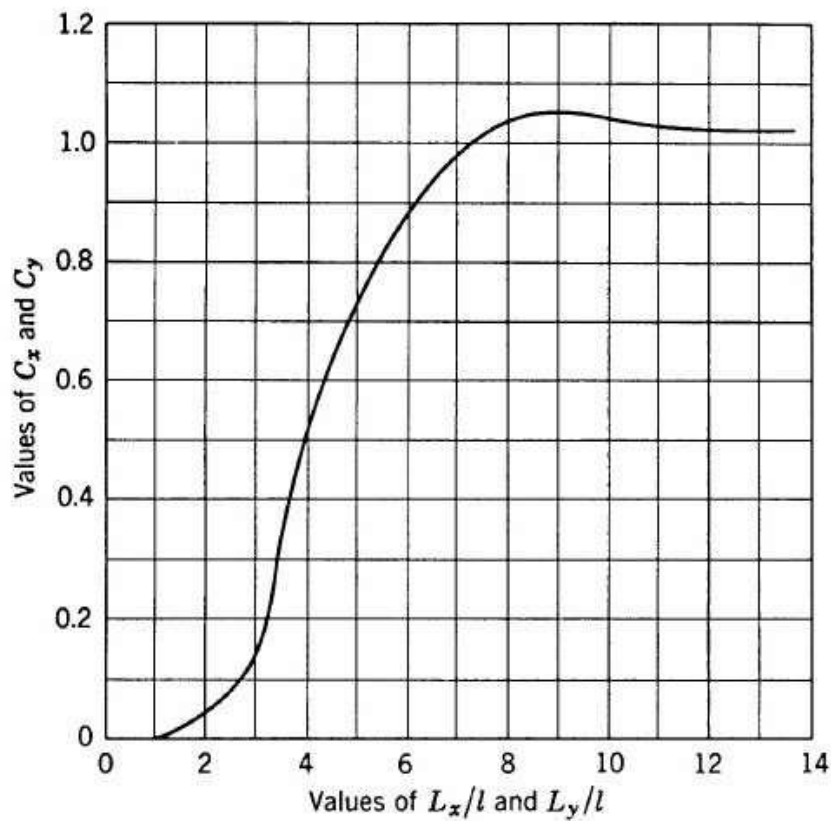


Figure III- Bradbury Chart

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q .1 Choose the correct alternatives from the options. 14

- 1) In CC pavement, no warping condition of the pavement is called when _____.
 - a) The temperature at the top and bottom of the CC pavement slab will be equal
 - b) The temperature at the top of CC pavement is more the bottom
 - c) The temperature at the bottom of CC pavement is more the top
 - d) At the middle third of the CC pavement temperature is high
- 2) In rigid pavement, the longitudinal joint is provided when:
 - a) The width of the pavement exceeds 10m
 - b) The width of the pavement exceeds 4.5m
 - c) The width of the pavement exceeds 7m
 - d) The width of the pavement exceeds 15m
- 3) What nature of warping stresses are generated in a CC pavement during a summer mid day?
 - a) Tensile in bottom fibre and compressive in top fibre
 - b) Compressive in both top and bottom fibre
 - c) Tensile in both top and bottom fibre
 - d) Compressive in bottom fibre and tensile in top fibre
- 4) The modulus of the subgrade reaction is given by _____.
 - a) $K = \frac{P}{\Delta}$
 - b) $K = Px\Delta$
 - c) $K = P + \Delta$
 - d) $K = \Delta$
- 5) Know the load, warping, and frictional stresses on cement concrete pavement slabs as 220N/mm², 300N/mm², and 10N/mm² respectively, the critical combination of stresses during the summer season is _____.
 - a) 300N/mm²
 - b) 530N/mm²
 - c) 520N/mm²
 - d) 510N/mm²

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume any missing data suitably and mention it clearly.

Section – I

Q.2 Answer Any Two questions. 14

- a) Draw a neat sketch of flexible pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) What is VDF? Determine the Equivalent Wheel Load Factor or VDF value of the following two axle loads in terms of the standard axle load of 8.16tonne.
 - i) LCV with a rear axle load of 4.0t
 - ii) HCV with a rear axle load of 16t
- c) A flexible pavement of thickness 48cm is laid over a subgrade. A circular load of 16cm with a uniform contact pressure of 6.5kg/cm^2 is applied. Assume the elastic modulus of the subgrade as well as the pavement layer to be 900kg/cm^2 . Assuming a homogenous elastic single-layer system determine the deflection of the pavement surface under the center of the load. Use the Deflection Factor chart given in Fig-I.

Q.4 Answer Any Two questions 14

- a) Draw a neat sketch of rigid pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) Find ESWL at depths of 50mm, 200mm, and 400mm for a dual wheel carrying 2044 kN each. The center-to-center tyre spacing is 200mm and the distance between the walls of the two tyres is 100mm. Use (log) equation to calculate ESWL.
- c) Plate bearing tests were conducted using a 30cm diameter plate on soil subgrade and over a base course of thickness 45cm. The pressure yielded at 0.5cm deflection on the subgrade and base course was 1.25kg/cm^2 and 8kg/cm^2 respectively. Design the thickness requirement of flexible pavement for a wheel load of 5100kg with tyre pressure of 8.0kg/cm^2 for an allowable deflection of 0.5cm using the Burmister two-layer deflection factor chart shown in Fig-II.

Section – II

Q.5 Answer Any Two questions.**14**

- a) Explain the different joints provided with their functions in CC pavements.
- b) With a diagram explain the working principle of Benkelman beam for measurement of pavement deflection.
- c) C.C. Pavement is constructed using the following data:
 - i) Modulus of elasticity $3.3 \times 10^5 \text{ kg/cm}^2$
 - ii) Poisson's ratio=0.15
 - iii) Thickness of CC pavement = 18 cm
 - iv) Modulus of subgrade reaction- 25kg/cm^3
 - v) Wheel load = 4100 kg
 - vi) Radius of loaded area = 12 cm

Calculate stresses at the Interior, Edge, and corner by Westergaard's method.

Q.6 Answer Any Two questions**14**

- a) Determine the warping stresses at the interior, edge, and corner of a 25cm thick cement concrete pavement with transverse joints at 5.0m intervals and longitudinal joints at 3.6m intervals. The modulus of subgrade reaction K is 6.9kg/cm^3 and the radius of the loaded area is 15cm. Assume the temperature differential during the day to be 0.6°C per cm slab thickness (for warping stress at interior and edge) and a maximum temperature differential of 0.4°C per cm slab thickness during the night (for warping stress at the corner). Assume $e=10 \times 10^{-6}$ per $^\circ\text{C}$, $E=3 \times 10^5 \text{ kg/cm}^2$, $\mu=0.15$. Use the Bradbury chart given in Figure III.
- b) Write a short note any two:
 - i) Factors affecting flexible pavement design
 - ii) Layered systems concepts of Pavement Design
 - iii) Factors Affecting Rigid Pavement Design
 - iv) Principles of Rigid Pavement Design as per IRC-58-2015
- c) The rebound deflection values determined at 15 spots are given below. Determine the values of:
 - i) mean deflection
 - ii) standard deviation and
 - iii) characteristic deflection for an important highway with heavy traffic
 Rebound deflection values in mm: 1.40, 1.32, 1.25, 1.35, 1.48, 1.60, 1.65, 1.55, 1.45, 1.40, 1.36, 1.46, 1.50, 1.52, 1.45

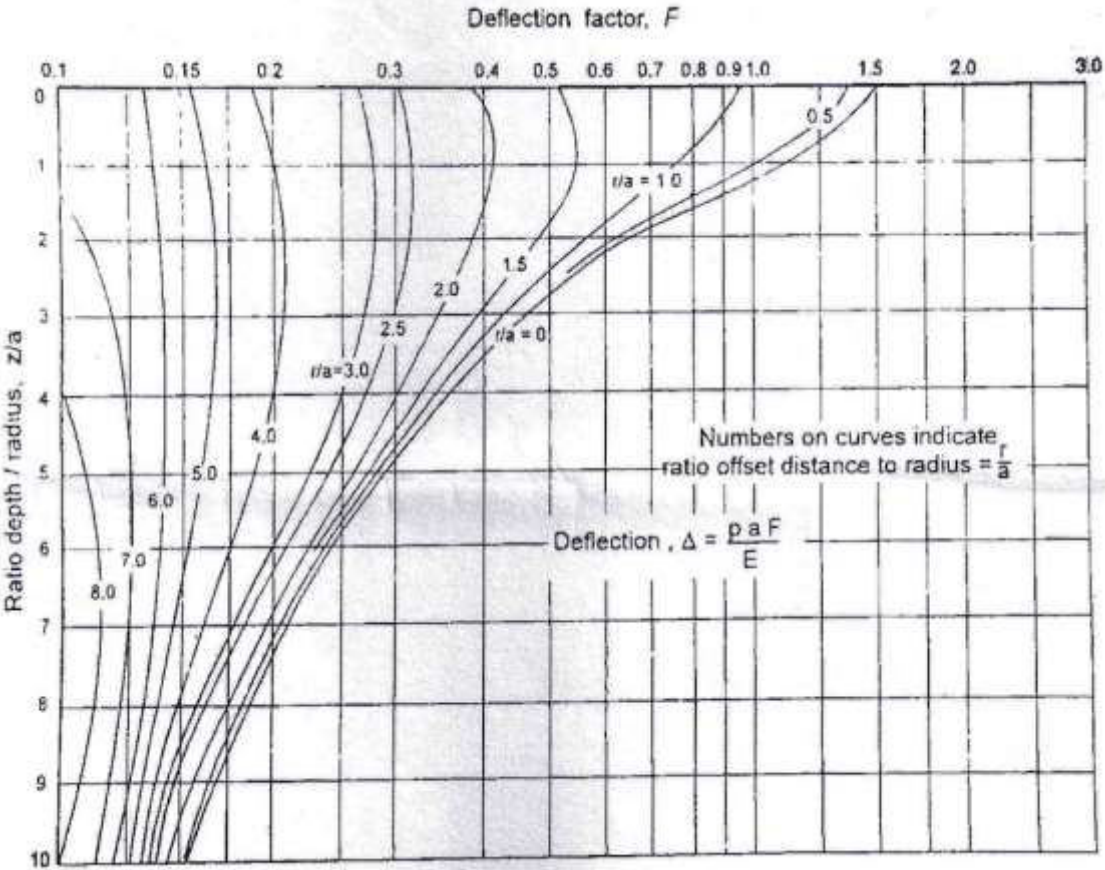


Figure-I-Deflection Factor Chart (Single Layer)

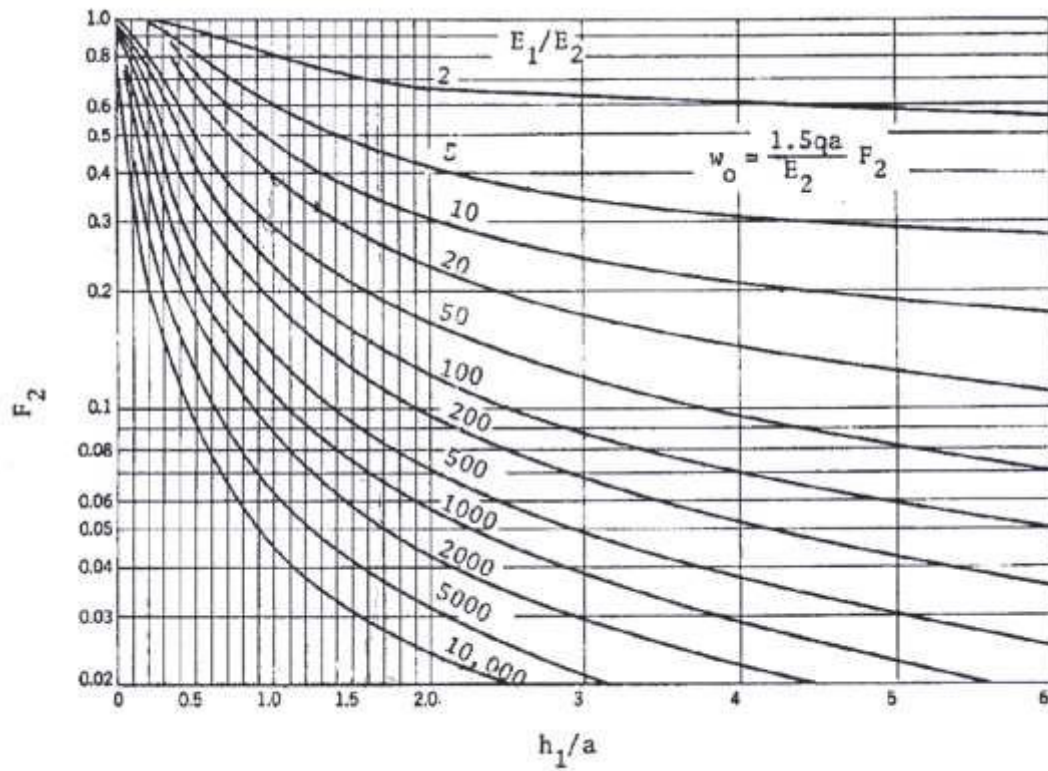


Figure-II-Burmister two-layer deflection chart

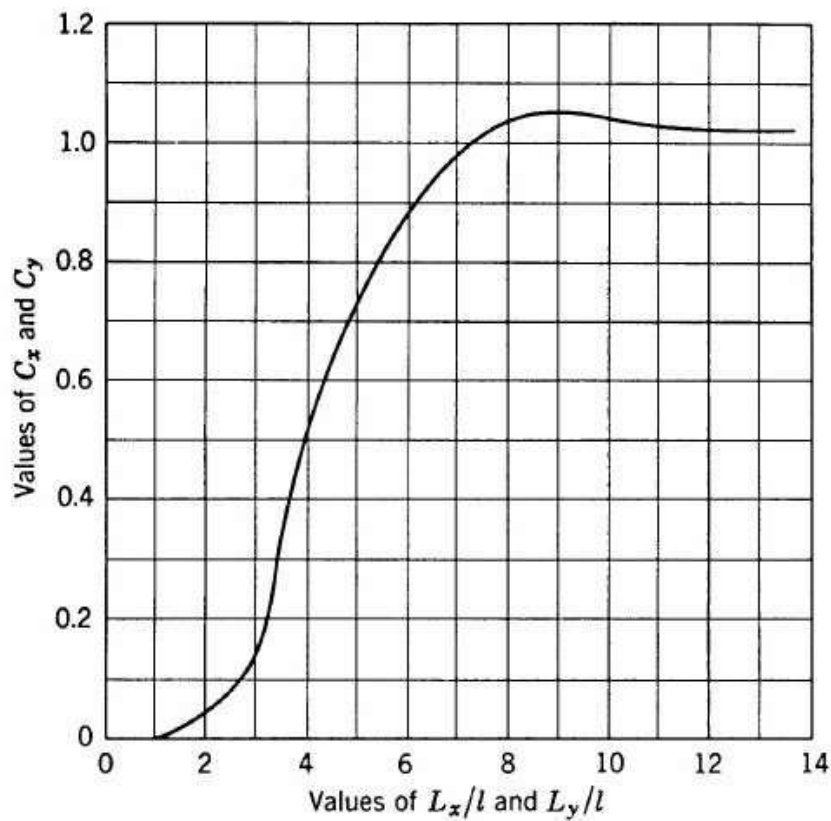


Figure III- Bradbury Chart

- 8) The axle loads and the number of axles per heavy vehicle are converted in terms of the number of standard axle loads per vehicle is known as, _____.
a) Lane Distribution Factor
b) Vehicle Damage Factor
c) Directional Distribution Factor
d) Equivalent Single Wheel Load Factor
- 9) The vehicle carries a rear single axle weight of 17 tonnes, what is the EWLF? (Use the fourth power rule and consider standard axle weight as 8.16tonne)
a) 15.78
b) 14.83
c) 16.78
d) 18.83
- 10) The ratio of flexural stress to its flexural strength is called _____.
a) Compressive Strength
b) Tensile Strength
c) Stress Ratio
d) Flexural strength
- 11) In CC pavement design, if the stress ratio due to design load is less than 0.44, then _____.
a) Pavement slab is safe
b) No warping stresses
c) No possibility of fatigue failure due to repeated application of load
d) No friction stresses at the bottom of the slab
- 12) In CC pavement, no warping condition of the pavement is called when _____.
a) The temperature at the top and bottom of the CC pavement slab will be equal
b) The temperature at the top of CC pavement is more the bottom
c) The temperature at the bottom of CC pavement is more the top
d) At the middle third of the CC pavement temperature is high
- 13) In rigid pavement, the longitudinal joint is provided when:
a) The width of the pavement exceeds 10m
b) The width of the pavement exceeds 4.5m
c) The width of the pavement exceeds 7m
d) The width of the pavement exceeds 15m
- 14) What nature of warping stresses are generated in a CC pavement during a summer mid day?
a) Tensile in bottom fibre and compressive in top fibre
b) Compressive in both top and bottom fibre
c) Tensile in both top and bottom fibre
d) Compressive in bottom fibre and tensile in top fibre

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume any missing data suitably and mention it clearly.

Section – I

Q.2 Answer Any Two questions. 14

- a) Draw a neat sketch of flexible pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) What is VDF? Determine the Equivalent Wheel Load Factor or VDF value of the following two axle loads in terms of the standard axle load of 8.16tonne.
 - i) LCV with a rear axle load of 4.0t
 - ii) HCV with a rear axle load of 16t
- c) A flexible pavement of thickness 48cm is laid over a subgrade. A circular load of 16cm with a uniform contact pressure of 6.5kg/cm^2 is applied. Assume the elastic modulus of the subgrade as well as the pavement layer to be 900kg/cm^2 . Assuming a homogenous elastic single-layer system determine the deflection of the pavement surface under the center of the load. Use the Deflection Factor chart given in Fig-I.

Q.4 Answer Any Two questions 14

- a) Draw a neat sketch of rigid pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) Find ESWL at depths of 50mm, 200mm, and 400mm for a dual wheel carrying 2044 kN each. The center-to-center tyre spacing is 200mm and the distance between the walls of the two tyres is 100mm. Use (log) equation to calculate ESWL.
- c) Plate bearing tests were conducted using a 30cm diameter plate on soil subgrade and over a base course of thickness 45cm. The pressure yielded at 0.5cm deflection on the subgrade and base course was 1.25kg/cm^2 and 8kg/cm^2 respectively. Design the thickness requirement of flexible pavement for a wheel load of 5100kg with tyre pressure of 8.0kg/cm^2 for an allowable deflection of 0.5cm using the Burmister two-layer deflection factor chart shown in Fig-II.

Section – II

Q.5 Answer Any Two questions.**14**

- a) Explain the different joints provided with their functions in CC pavements.
- b) With a diagram explain the working principle of Benkelman beam for measurement of pavement deflection.
- c) C.C. Pavement is constructed using the following data:
 - i) Modulus of elasticity $3.3 \times 10^5 \text{ kg/cm}^2$
 - ii) Poisson's ratio=0.15
 - iii) Thickness of CC pavement = 18 cm
 - iv) Modulus of subgrade reaction- 25kg/cm^3
 - v) Wheel load = 4100 kg
 - vi) Radius of loaded area = 12 cm

Calculate stresses at the Interior, Edge, and corner by Westergaard's method.

Q.6 Answer Any Two questions**14**

- a) Determine the warping stresses at the interior, edge, and corner of a 25cm thick cement concrete pavement with transverse joints at 5.0m intervals and longitudinal joints at 3.6m intervals. The modulus of subgrade reaction K is 6.9kg/cm^3 and the radius of the loaded area is 15cm. Assume the temperature differential during the day to be 0.6°C per cm slab thickness (for warping stress at interior and edge) and a maximum temperature differential of 0.4°C per cm slab thickness during the night (for warping stress at the corner). Assume $e=10 \times 10^{-6}$ per $^\circ\text{C}$, $E=3 \times 10^5 \text{ kg/cm}^2$, $\mu=0.15$. Use the Bradbury chart given in Figure III.
- b) Write a short note any two:
 - i) Factors affecting flexible pavement design
 - ii) Layered systems concepts of Pavement Design
 - iii) Factors Affecting Rigid Pavement Design
 - iv) Principles of Rigid Pavement Design as per IRC-58-2015
- c) The rebound deflection values determined at 15 spots are given below. Determine the values of:
 - i) mean deflection
 - ii) standard deviation and
 - iii) characteristic deflection for an important highway with heavy traffic
 Rebound deflection values in mm: 1.40, 1.32, 1.25, 1.35, 1.48, 1.60, 1.65, 1.55, 1.45, 1.40, 1.36, 1.46, 1.50, 1.52, 1.45

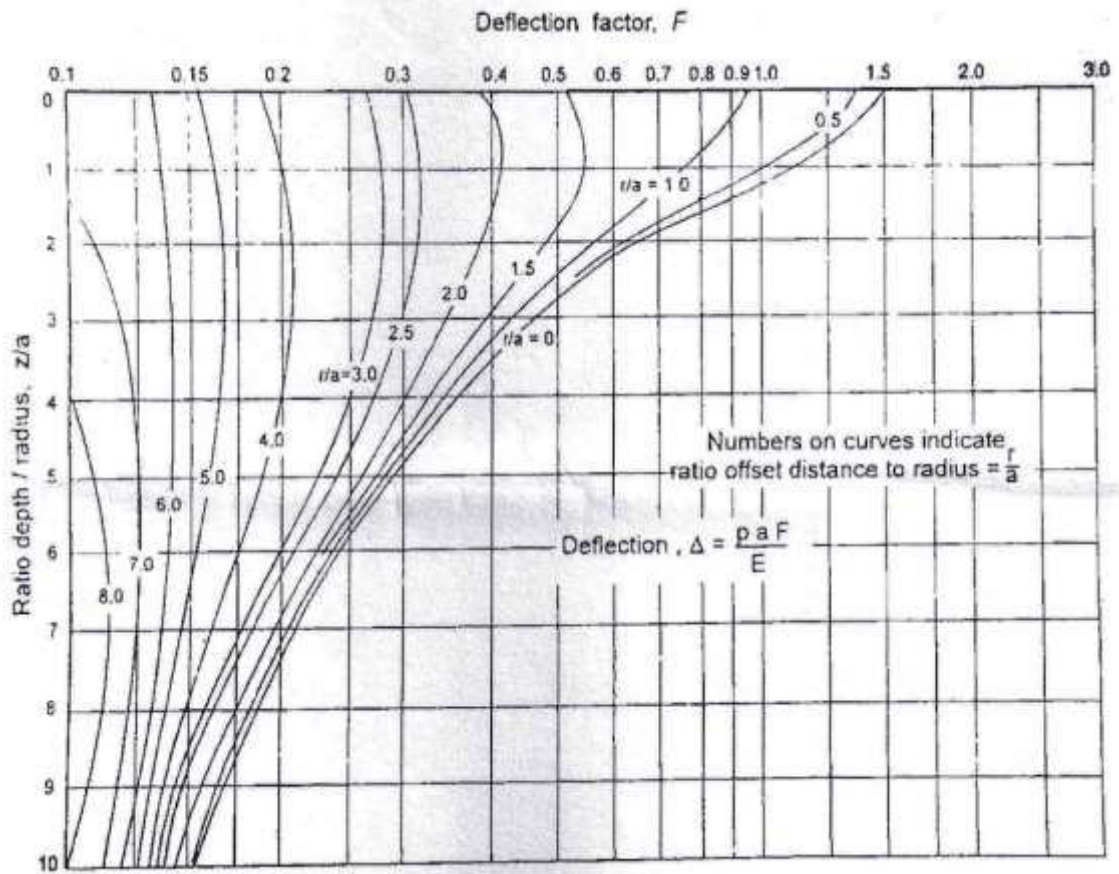


Figure-I-Deflection Factor Chart (Single Layer)

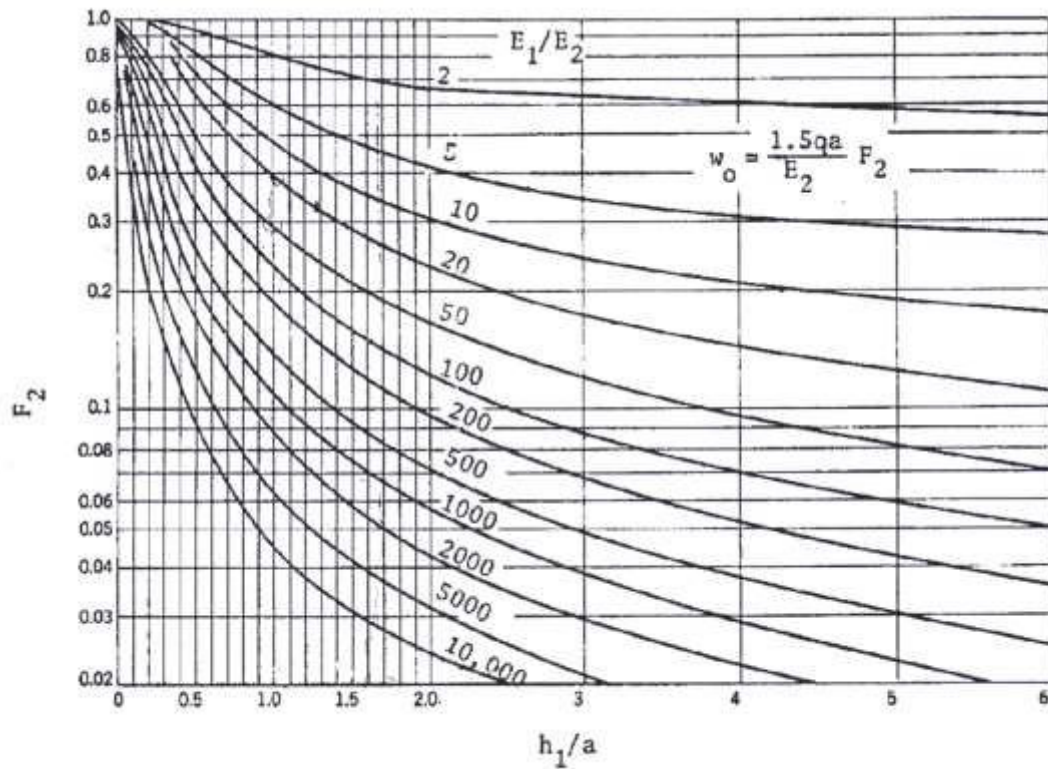


Figure-II-Burmister two-layer deflection chart

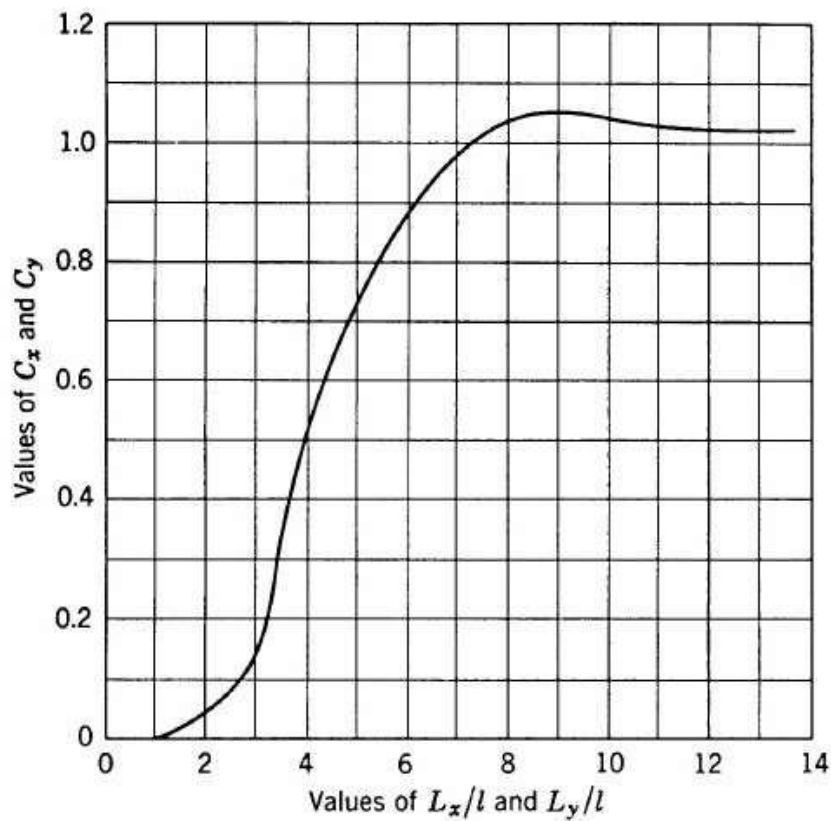


Figure III- Bradbury Chart

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q .1 Choose the correct alternatives from the options. 14

- 1) The ratio of flexural stress to its flexural strength is called _____.
 a) Compressive Strength b) Tensile Strength
 c) Stress Ratio d) Flexural strength
- 2) In CC pavement design, if the stress ratio due to design load is less than 0.44, then _____.
 a) Pavement slab is safe
 b) No warping stresses
 c) No possibility of fatigue failure due to repeated application of load
 d) No friction stresses at the bottom of the slab
- 3) In CC pavement, no warping condition of the pavement is called when _____.
 a) The temperature at the top and bottom of the CC pavement slab will be equal
 b) The temperature at the top of CC pavement is more the bottom
 c) The temperature at the bottom of CC pavement is more the top
 d) At the middle third of the CC pavement temperature is high
- 4) In rigid pavement, the longitudinal joint is provided when:
 a) The width of the pavement exceeds 10m
 b) The width of the pavement exceeds 4.5m
 c) The width of the pavement exceeds 7m
 d) The width of the pavement exceeds 15m
- 5) What nature of warping stresses are generated in a CC pavement during a summer mid day?
 a) Tensile in bottom fibre and compressive in top fibre
 b) Compressive in both top and bottom fibre
 c) Tensile in both top and bottom fibre
 d) Compressive in bottom fibre and tensile in top fibre

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Pavement Design (BTN01613)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume any missing data suitably and mention it clearly.

Section – I

Q.2 Answer Any Two questions. 14

- a) Draw a neat sketch of flexible pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) What is VDF? Determine the Equivalent Wheel Load Factor or VDF value of the following two axle loads in terms of the standard axle load of 8.16tonne.
 - i) LCV with a rear axle load of 4.0t
 - ii) HCV with a rear axle load of 16t
- c) A flexible pavement of thickness 48cm is laid over a subgrade. A circular load of 16cm with a uniform contact pressure of 6.5kg/cm^2 is applied. Assume the elastic modulus of the subgrade as well as the pavement layer to be 900kg/cm^2 . Assuming a homogenous elastic single-layer system determine the deflection of the pavement surface under the center of the load. Use the Deflection Factor chart given in Fig-I.

Q.4 Answer Any Two questions 14

- a) Draw a neat sketch of rigid pavement and show component parts of all layers. Briefly explain the function of all layers.
- b) Find ESWL at depths of 50mm, 200mm, and 400mm for a dual wheel carrying 2044 kN each. The center-to-center tyre spacing is 200mm and the distance between the walls of the two tyres is 100mm. Use (log) equation to calculate ESWL.
- c) Plate bearing tests were conducted using a 30cm diameter plate on soil subgrade and over a base course of thickness 45cm. The pressure yielded at 0.5cm deflection on the subgrade and base course was 1.25kg/cm^2 and 8kg/cm^2 respectively. Design the thickness requirement of flexible pavement for a wheel load of 5100kg with tyre pressure of 8.0kg/cm^2 for an allowable deflection of 0.5cm using the Burmister two-layer deflection factor chart shown in Fig-II.

Section – II

Q.5 Answer Any Two questions.**14**

- a) Explain the different joints provided with their functions in CC pavements.
- b) With a diagram explain the working principle of Benkelman beam for measurement of pavement deflection.
- c) C.C. Pavement is constructed using the following data:
 - i) Modulus of elasticity $3.3 \times 10^5 \text{ kg/cm}^2$
 - ii) Poisson's ratio=0.15
 - iii) Thickness of CC pavement = 18 cm
 - iv) Modulus of subgrade reaction- 25kg/cm^3
 - v) Wheel load = 4100 kg
 - vi) Radius of loaded area = 12 cm

Calculate stresses at the Interior, Edge, and corner by Westergaard's method.

Q.6 Answer Any Two questions**14**

- a) Determine the warping stresses at the interior, edge, and corner of a 25cm thick cement concrete pavement with transverse joints at 5.0m intervals and longitudinal joints at 3.6m intervals. The modulus of subgrade reaction K is 6.9kg/cm^3 and the radius of the loaded area is 15cm. Assume the temperature differential during the day to be 0.6°C per cm slab thickness (for warping stress at interior and edge) and a maximum temperature differential of 0.4°C per cm slab thickness during the night (for warping stress at the corner). Assume $e=10 \times 10^{-6}$ per $^\circ\text{C}$, $E=3 \times 10^5 \text{ kg/cm}^2$, $\mu=0.15$. Use the Bradbury chart given in Figure III.
- b) Write a short note any two:
 - i) Factors affecting flexible pavement design
 - ii) Layered systems concepts of Pavement Design
 - iii) Factors Affecting Rigid Pavement Design
 - iv) Principles of Rigid Pavement Design as per IRC-58-2015
- c) The rebound deflection values determined at 15 spots are given below. Determine the values of:
 - i) mean deflection
 - ii) standard deviation and
 - iii) characteristic deflection for an important highway with heavy traffic
 Rebound deflection values in mm: 1.40, 1.32, 1.25, 1.35, 1.48, 1.60, 1.65, 1.55, 1.45, 1.40, 1.36, 1.46, 1.50, 1.52, 1.45

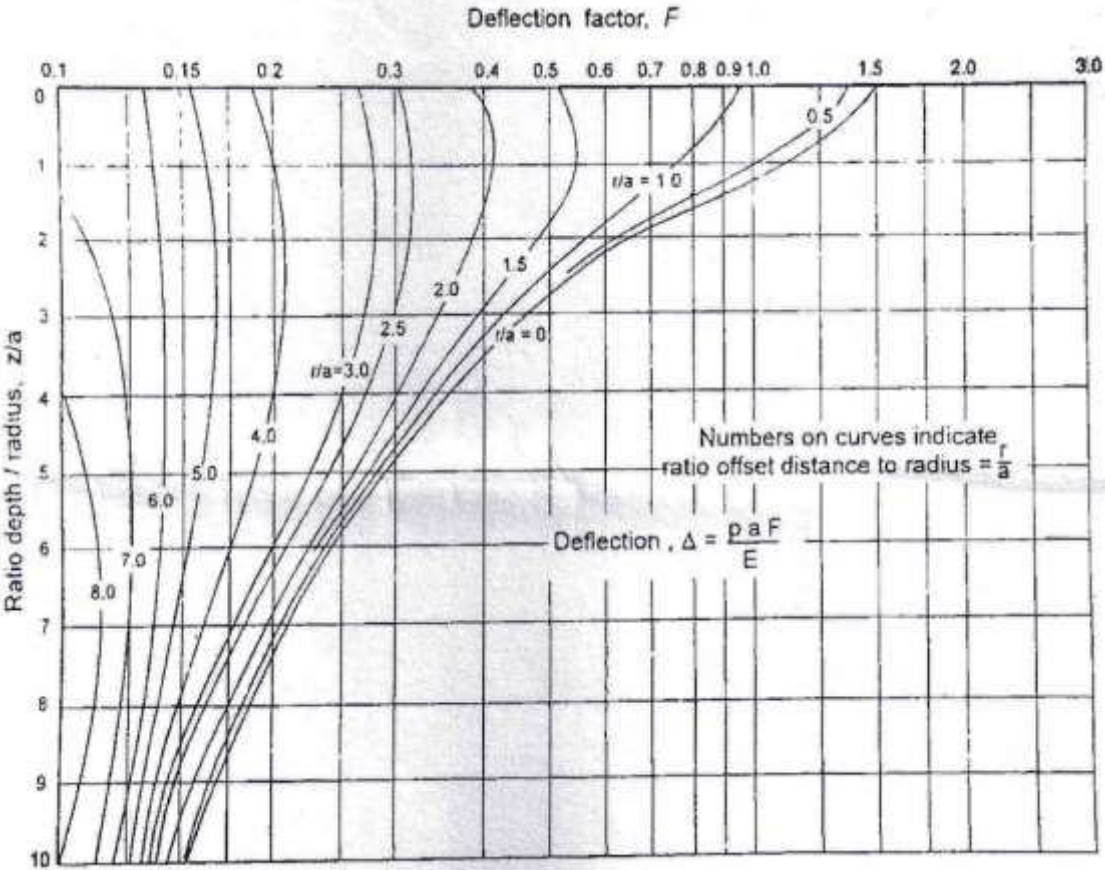


Figure-I-Deflection Factor Chart (Single Layer)

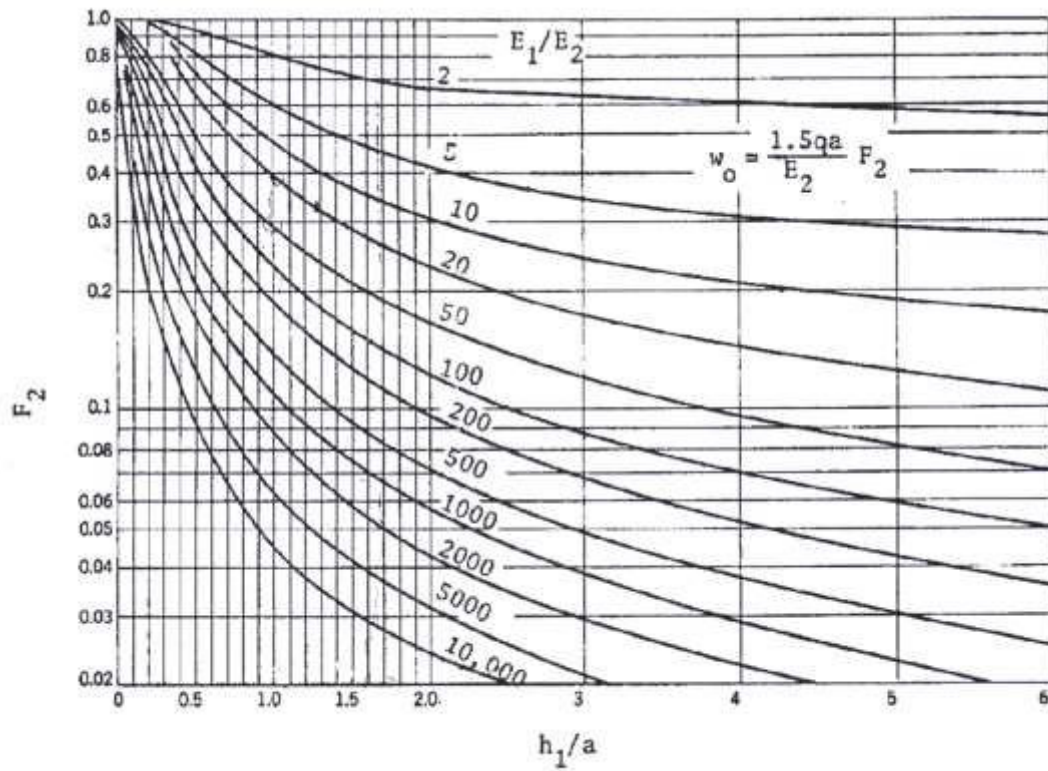


Figure-II-Burmister two-layer deflection chart

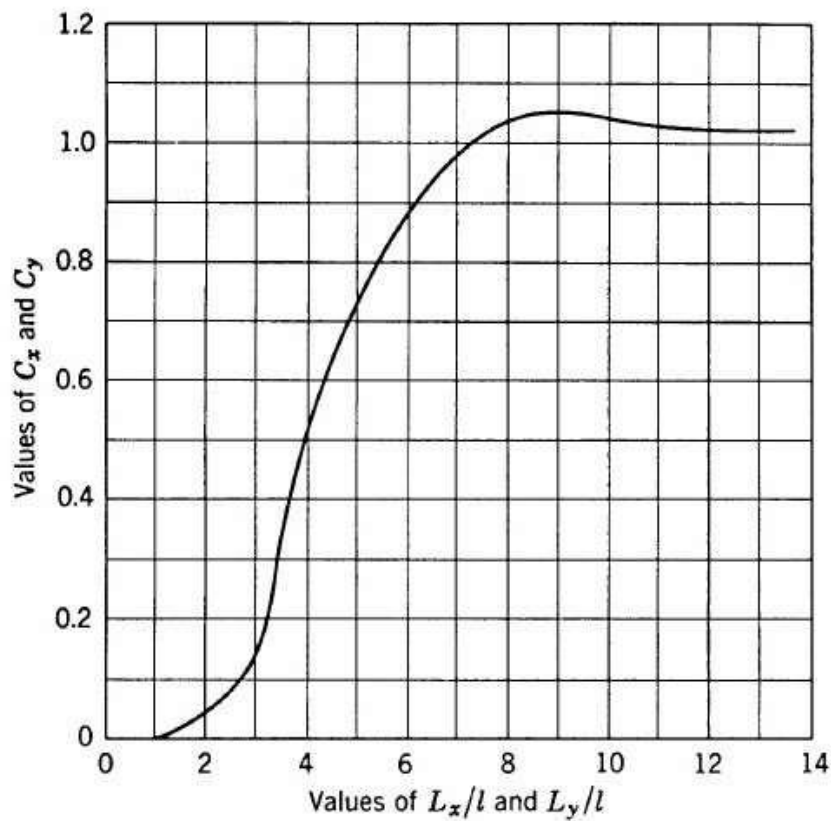


Figure III- Bradbury Chart

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry Two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. (2 Marks Each)

14

- 1) The workability of the concrete by slump test is expressed as _____.
 - a) mm³/h
 - b) mm²/h
 - c) mm/h
 - d) mm
- 2) RMC stands for _____.
 - a) Rapid Mix Cement
 - b) Ready Mix Concrete
 - c) Ready Mix Cements
 - d) Rapid Mix Concrete
- 3) Non uniform compaction may cause the concrete _____.
 - a) porous
 - b) non-homogeneous
 - c) reduce strength
 - d) all of above
- 4) Which of the following is not a composition of cement?
 - a) Tricalcium Silicate
 - b) Dicalcium Silicate
 - c) Tricalcium Aluminate
 - d) Dicalcium Aluminate
- 5) True slump shows characteristics of _____.
 - a) Homogeneous material
 - b) Non cohesive material
 - c) Segregation
 - d) Bleeding
- 6) Grading of aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Affects the w/c ratio
 - d) All the above is true
- 7) Finer the cement _____.
 - a) Higher is the rate of hydration
 - b) More is the surface area
 - c) Lesser the amount of water required for constant slump
 - d) All of the above

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Explain briefly heat of hydration process occurred in the cement **10**
- Q.3** Define admixture and explain in detail functions of the admixture. **09**
- Q.4** Define workability and explain in detail factors affecting workability. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** What is Mix Design? Write down design steps of concrete mix design using IS 10262:2009 method **10**
- Q.7** What are the particular requirements for pumpability of a concrete mix? **09**
- Q.8** Define ready mix concrete and its applications to the construction industry **09**
- Q.9** What are the factors contributing to cracks in concrete? Explain any crack repair technique in detail **09**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry Two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. (2 Marks Each)

14

- 1) True slump shows characteristics of _____.
 - a) Homogeneous material
 - b) Non cohesive material
 - c) Segregation
 - d) Bleeding
- 2) Grading of aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Affects the w/c ratio
 - d) All the above is true
- 3) Finer the cement _____.
 - a) Higher is the rate of hydration
 - b) More is the surface area
 - c) Lesser the amount of water required for constant slump
 - d) All of the above
- 4) The workability of the concrete by slump test is expressed as _____.
 - a) mm³/h
 - b) mm²/h
 - c) mm/h
 - d) mm
- 5) RMC stands for _____.
 - a) Rapid Mix Cement
 - b) Ready Mix Concrete
 - c) Ready Mix Cements
 - d) Rapid Mix Concrete
- 6) Non uniform compaction may cause the concrete _____.
 - a) porous
 - b) non-homogeneous
 - c) reduce strength
 - d) all of above
- 7) Which of the following is not a composition of cement?
 - a) Tricalcium Silicate
 - b) Dicalcium Silicate
 - c) Tricalcium Aluminate
 - d) Dicalcium Aluminate

Seat No.	
-----------------	--

Set Q

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Explain briefly heat of hydration process occurred in the cement **10**
- Q.3** Define admixture and explain in detail functions of the admixture. **09**
- Q.4** Define workability and explain in detail factors affecting workability. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** What is Mix Design? Write down design steps of concrete mix design using IS 10262:2009 method **10**
- Q.7** What are the particular requirements for pumpability of a concrete mix? **09**
- Q.8** Define ready mix concrete and its applications to the construction industry **09**
- Q.9** What are the factors contributing to cracks in concrete? Explain any crack repair technique in detail **09**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry Two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. (2 Marks Each)

14

- 1) Non uniform compaction may cause the concrete _____.
 - a) porous
 - b) non-homogeneous
 - c) reduce strength
 - d) all of above
- 2) Which of the following is not a composition of cement?
 - a) Tricalcium Silicate
 - b) Dicalcium Silicate
 - c) Tricalcium Aluminate
 - d) Dicalcium Aluminate
- 3) True slump shows characteristics of _____.
 - a) Homogeneous material
 - b) Non cohesive material
 - c) Segregation
 - d) Bleeding
- 4) Grading of aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Affects the w/c ratio
 - d) All the above is true
- 5) Finer the cement _____.
 - a) Higher is the rate of hydration
 - b) More is the surface area
 - c) Lesser the amount of water required for constant slump
 - d) All of the above
- 6) The workability of the concrete by slump test is expressed as _____.
 - a) mm³/h
 - b) mm²/h
 - c) mm/h
 - d) mm
- 7) RMC stands for _____.
 - a) Rapid Mix Cement
 - b) Ready Mix Concrete
 - c) Ready Mix Cements
 - d) Rapid Mix Concrete

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Explain briefly heat of hydration process occurred in the cement **10**
- Q.3** Define admixture and explain in detail functions of the admixture. **09**
- Q.4** Define workability and explain in detail factors affecting workability. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** What is Mix Design? Write down design steps of concrete mix design using IS 10262:2009 method **10**
- Q.7** What are the particular requirements for pumpability of a concrete mix? **09**
- Q.8** Define ready mix concrete and its applications to the construction industry **09**
- Q.9** What are the factors contributing to cracks in concrete? Explain any crack repair technique in detail **09**

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry Two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. (2 Marks Each)

14

- 1) Finer the cement _____.
 - a) Higher is the rate of hydration
 - b) More is the surface area
 - c) Lesser the amount of water required for constant slump
 - d) All of the above
- 2) The workability of the concrete by slump test is expressed as _____.
 - a) mm³/h
 - b) mm²/h
 - c) mm/h
 - d) mm
- 3) RMC stands for _____.
 - a) Rapid Mix Cement
 - b) Ready Mix Concrete
 - c) Ready Mix Cements
 - d) Rapid Mix Concrete
- 4) Non uniform compaction may cause the concrete _____.
 - a) porous
 - b) non-homogeneous
 - c) reduce strength
 - d) all of above
- 5) Which of the following is not a composition of cement?
 - a) Tricalcium Silicate
 - b) Dicalcium Silicate
 - c) Tricalcium Aluminate
 - d) Dicalcium Aluminate
- 6) True slump shows characteristics of _____.
 - a) Homogeneous material
 - b) Non cohesive material
 - c) Segregation
 - d) Bleeding
- 7) Grading of aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Affects the w/c ratio
 - d) All the above is true

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Advanced Concrete Technology (BTN01616)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Explain briefly heat of hydration process occurred in the cement **10**
- Q.3** Define admixture and explain in detail functions of the admixture. **09**
- Q.4** Define workability and explain in detail factors affecting workability. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** What is Mix Design? Write down design steps of concrete mix design using IS 10262:2009 method **10**
- Q.7** What are the particular requirements for pumpability of a concrete mix? **09**
- Q.8** Define ready mix concrete and its applications to the construction industry **09**
- Q.9** What are the factors contributing to cracks in concrete? Explain any crack repair technique in detail **09**

Seat No.	
----------	--

Set **P**

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat sketches wherever necessary.
 - 5) Use of non-programmable calculator is permitted.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Specific force represents the sum of pressure force and _____.
 - a) Datum head
 - b) Momentum flux per unit weight
 - c) Momentum flux and datum head
 - d) None
- 2) If the Froude's number is 9.2 then the jump is known as _____.
 - a) Steady
 - b) Oscillating
 - c) Undular
 - d) Strong
- 3) The flow in open channel may be characterized as turbulent when _____.
 - a) $Re < 500$
 - b) $Re > 2000$
 - c) $Re > 4000$
 - d) $500 < Re < 2000$
- 4) In Gradually varied flow, if dy/dx is positive then dE/dx will be _____.
 - a) Zero
 - b) Negative if $y > y_c$
 - c) Positive if $y > y_c$
 - d) Always negative
- 5) For the trapezoidal section _____.
 - a) Shape is of half hexagon
 - b) Depth of flow equal to half bed width
 - c) Side slope equal to 45°
 - d) None
- 6) River plains are made up of _____.
 - a) Black soil
 - b) Red soil
 - c) Alluvium
 - d) None
- 7) The momentum correction factor, β is given as _____.
 - a) $1/V^2 A \int V^3 \cdot dA$
 - b) $1/VA \int V \cdot dA$
 - c) $1/V^3 A \int V^2 \cdot dA$
 - d) $1/V^2 A \int V^2 \cdot dA$

Seat No.	
----------	--

Set **P**

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.
4) Use of non-programmable calculator is permitted.

Section –I

Q.2 Attempt any four. 16

- a) The velocity distribution in rectangular channel of width 'B' and depth 'Yo' was approximated as $V = K1\sqrt{y}$ Where $k1 = \text{constant}$; calculate the average velocity for the crosssection and correction coefficient ' α ' & ' β '.
- b) A 3.6m wide rectangular channel convey's 10 m³/s of water with velocity 6 m/s. state is there formation of hydraulic jump if yes calculate height, length and strength of Jump and what is loss of energy per kg of water.
- c) Derive the modified GVF equation and draw a neat sketch and show all details.
- d) A flow of 6.0 m³/s is passing at a depth of 1.5 m. through a rectangular channel of width 2.5 m. If ' α ' is 1.1 Determine specific energy of flow also determine the value of the depth alternative to the existing depth. If ' α ' = 1.0 (assumed for alternate depth flow).
- e) What do you understand by most economical channel section? and show that for trapezoidal section Half of top width= Length of one of sloping side and hydraulic mean depth= half the depth of flow.

Q.3 Attempt any two. 12

- a) Define kinetic energy correction=factor (α) and momentum correction factor (β) and derive their expressions.
- b) A discharge of 840 m³/s flows down a spillway and then passes on a 60 m. Wide concrete apron($n= 0.014$) the velocity of water at the toe of spillway is 10 m/s. A tail water depth of 4.40 m the channel below causes a hydraulic jump on the horizontal apron. Determine
 - i) Depth before the jump
 - ii) Length of jump
 - iii) Energy loss in jump
 - iv) Specific force at the toe
- c) Derive the equation for loss of energy through Hydraulic Jump.

Section – II

Q.4 Attempt Any Four**16**

- a) Explain
 - i) Regime channel
 - ii) Bed load and its measurement
- b) Derive 'Reynold's model law' and state giving examples where it can be used.
- c) What do you understand by similarity? Explain Dynamic similarity.
- d) Draw a neat sketch of Current meter and explain its working in details.
- e) Design a regime channel by using lacey's theory from the data, discharge= $50 \text{ m}^3/\text{s}$ and silt factor =1.12 (Assume suitable data wherever necessary)

Q.5 Attempt Any Two**12**

- a) Write short notes on:
 - i) Cut-off
 - ii) River training works
- b) Differentiate between Kennedy's theory and Lacey' theory for channel design.
- c) A model of water meter is tested in 90 mm diameter pipe. The discharge was 50 lit/sec and pressure difference is 0.11 N/mm^2 . What will be the discharge in pipe of 450 mm diameter pipe and what will be the pressure.

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Draw neat sketches wherever necessary.
5) Use of non-programmable calculator is permitted.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The mean velocity in Lacey's regime channel is proportional to _____.
 - a) $11 R^{1/2} S_0^{1/2}$
 - b) $10.8 D^{2/3} S_0^{1/3}$
 - c) $11 D S_0$
 - d) None
- 2) Shield's diagram is a plot of non dimensional shear stress (τ_c) against _____.
 - a) Relative depth
 - b) Shear Reynold's number
 - c) Hydraulic radius
 - d) Reynold's number
- 3) Extreme condition of meanders is called as _____.
 - a) Leavee
 - b) Spurs
 - c) Cut-off
 - d) Island
- 4) River training work serves the following purposes _____.
 - a) Protect the river bed and banks
 - b) Direct the river flow in desired condition
 - c) Increase or decrease of the river discharge
 - d) Protect the surrounding land from flooding
- 5) River gauge is used to measure _____.
 - a) Still level
 - b) Water level
 - c) Turbulence
 - d) Current
- 6) Distorted models are required to be prepared for _____.
 - a) Rivers
 - b) Commercial buildings
 - c) Residential buildings
 - d) None
- 7) The dimension of kinematic viscosity is _____.
 - a) $L^{-1} T^{-1}$
 - b) $L^2 T^{-1}$
 - c) $L^{-3} T^{-3}$
 - d) $L^{-2} T^{-3}$
- 8) Specific force represents the sum of pressure force and _____.
 - a) Datum head
 - b) Momentum flux per unit weight
 - c) Momentum flux and datum head
 - d) None

Seat No.	
----------	--

Set **Q**

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.
4) Use of non-programmable calculator is permitted.

Section –I

Q.2 Attempt any four. **16**

- a) The velocity distribution in rectangular channel of width 'B' and depth 'Yo' was approximated as $V = K1\sqrt{y}$ Where $k1 = \text{constant}$; calculate the average velocity for the crosssection and correction coefficient ' α ' & ' β '.
- b) A 3.6m wide rectangular channel convey's 10 m³/s of water with velocity 6 m/s. state is there formation of hydraulic jump if yes calculate height, length and strength of Jump and what is loss of energy per kg of water.
- c) Derive the modified GVF equation and draw a neat sketch and show all details.
- d) A flow of 6.0 m³/s is passing at a depth of 1.5 m. through a rectangular channel of width 2.5 m. If ' α ' is 1.1 Determine specific energy of flow also determine the value of the depth alternative to the existing depth. If ' α ' = 1.0 (assumed for alternate depth flow).
- e) What do you understand by most economical channel section? and show that for trapezoidal section Half of top width= Length of one of sloping side and hydraulic mean depth= half the depth of flow.

Q.3 Attempt any two. **12**

- a) Define kinetic energy correction=factor (α) and momentum correction factor (β) and derive their expressions.
- b) A discharge of 840 m³/s flows down a spillway and then passes on a 60 m. Wide concrete apron($n= 0.014$) the velocity of water at the toe of spillway is 10 m/s. A tail water depth of 4.40 m the channel below causes a hydraulic jump on the horizontal apron. Determine
 - i) Depth before the jump
 - ii) Length of jump
 - iii) Energy loss in jump
 - iv) Specific force at the toe
- c) Derive the equation for loss of energy through Hydraulic Jump.

Section – II

Q.4 Attempt Any Four**16**

- a) Explain
 - i) Regime channel
 - ii) Bed load and its measurement
- b) Derive 'Reynold's model law' and state giving examples where it can be used.
- c) What do you understand by similarity? Explain Dynamic similarity.
- d) Draw a neat sketch of Current meter and explain its working in details.
- e) Design a regime channel by using lacey's theory from the data, discharge= $50 \text{ m}^3/\text{s}$ and silt factor =1.12 (Assume suitable data wherever necessary)

Q.5 Attempt Any Two**12**

- a) Write short notes on:
 - i) Cut-off
 - ii) River training works
- b) Differentiate between Kennedy's theory and Lacey' theory for channel design.
- c) A model of water meter is tested in 90 mm diameter pipe. The discharge was 50 lit/sec and pressure difference is 0.11 N/mm^2 . What will be the discharge in pipe of 450 mm diameter pipe and what will be the pressure.

Seat No.	
-------------	--

Set **R**

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat sketches wherever necessary.
 - 5) Use of non-programmable calculator is permitted.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) River training work serves the following purposes _____.
 - a) Protect the river bed and banks
 - b) Direct the river flow in desired condition
 - c) Increase or decrease of the river discharge
 - d) Protect the surrounding land from flooding
- 2) River gauge is used to measure _____.
 - a) Still level
 - b) Water level
 - c) Turbulence
 - d) Current
- 3) Distorted models are required to be prepared for _____.
 - a) Rivers
 - b) Commercial buildings
 - c) Residential buildings
 - d) None
- 4) The dimension of kinematic viscosity is _____.
 - a) $L^{-1}T^{-1}$
 - b) L^2T^{-1}
 - c) $L^{-3}T^{-3}$
 - d) $L^{-2}T^{-3}$
- 5) Specific force represents the sum of pressure force and _____.
 - a) Datum head
 - b) Momentum flux per unit weight
 - c) Momentum flux and datum head
 - d) None
- 6) If the Froude's number is 9.2 then the jump is known as _____.
 - a) Steady
 - b) Oscillating
 - c) Undular
 - d) Strong
- 7) The flow in open channel may be characterized as turbulent when _____.
 - a) $Re < 500$
 - b) $Re > 2000$
 - c) $Re > 4000$
 - d) $500 < Re < 2000$
- 8) In Gradually varied flow, if dy/dx is positive then dE/dx will be _____.
 - a) Zero
 - b) Negative if $y > y_c$
 - c) Positive if $y > y_c$
 - d) Always negative

- 9) For the trapezoidal section _____.
- a) Shape is of half hexagon
 - b) Depth of flow equal to half bed width
 - c) Side slope equal to 45°
 - d) None
- 10) River plains are made up of _____.
- a) Black soil
 - b) Red soil
 - c) Alluvium
 - d) None
- 11) The momentum correction factor, β is given as _____.
- a) $1/V^2 A \int V^3 \cdot dA$
 - b) $1/VA \int V \cdot dA$
 - c) $1/V^3 A \int V^2 \cdot dA$
 - d) $1/V^2 A \int V^2 \cdot dA$
- 12) The mean velocity in Lacey's regime channel is proportional to _____.
- a) $11 R^{1/2} S_0^{1/2}$
 - b) $10.8 D^{2/3} S_0^{1/3}$
 - c) $11 D S_0$
 - d) None
- 13) Shield's diagram is a plot of non dimensional shear stress (τ_c) against _____.
- a) Relative depth
 - b) Shear Reynold's number
 - c) Hydraulic radius
 - d) Reynold's number
- 14) Extreme condition of meanders is called as _____.
- a) Leavee
 - b) Spurs
 - c) Cut-off
 - d) Island

Seat No.	
----------	--

Set **R**

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.
4) Use of non-programmable calculator is permitted.

Section –I

Q.2 Attempt any four. 16

- a) The velocity distribution in rectangular channel of width 'B' and depth 'Yo' was approximated as $V = K1\sqrt{y}$ Where $k1 = \text{constant}$; calculate the average velocity for the crosssection and correction coefficient ' α ' & ' β '.
- b) A 3.6m wide rectangular channel convey's 10 m³/s of water with velocity 6 m/s. state is there formation of hydraulic jump if yes calculate height, length and strength of Jump and what is loss of energy per kg of water.
- c) Derive the modified GVF equation and draw a neat sketch and show all details.
- d) A flow of 6.0 m³/s is passing at a depth of 1.5 m. through a rectangular channel of width 2.5 m. If ' α ' is 1.1 Determine specific energy of flow also determine the value of the depth alternative to the existing depth. If ' α ' = 1.0 (assumed for alternate depth flow).
- e) What do you understand by most economical channel section? and show that for trapezoidal section Half of top width= Length of one of sloping side and hydraulic mean depth= half the depth of flow.

Q.3 Attempt any two. 12

- a) Define kinetic energy correction=factor (α) and momentum correction factor (β) and derive their expressions.
- b) A discharge of 840 m³/s flows down a spillway and then passes on a 60 m. Wide concrete apron($n= 0.014$) the velocity of water at the toe of spillway is 10 m/s. A tail water depth of 4.40 m the channel below causes a hydraulic jump on the horizontal apron. Determine
 - i) Depth before the jump
 - ii) Length of jump
 - iii) Energy loss in jump
 - iv) Specific force at the toe
- c) Derive the equation for loss of energy through Hydraulic Jump.

Section – II

Q.4 Attempt Any Four**16**

- a) Explain
 - i) Regime channel
 - ii) Bed load and its measurement
- b) Derive 'Reynold's model law' and state giving examples where it can be used.
- c) What do you understand by similarity? Explain Dynamic similarity.
- d) Draw a neat sketch of Current meter and explain its working in details.
- e) Design a regime channel by using lacey's theory from the data, discharge= $50 \text{ m}^3/\text{s}$ and silt factor =1.12 (Assume suitable data wherever necessary)

Q.5 Attempt Any Two**12**

- a) Write short notes on:
 - i) Cut-off
 - ii) River training works
- b) Differentiate between Kennedy's theory and Lacey' theory for channel design.
- c) A model of water meter is tested in 90 mm diameter pipe. The discharge was 50 lit/sec and pressure difference is 0.11 N/mm^2 . What will be the discharge in pipe of 450 mm diameter pipe and what will be the pressure.

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat sketches wherever necessary.
 - 5) Use of non-programmable calculator is permitted.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) River plains are made up of _____.
 - a) Black soil
 - b) Red soil
 - c) Alluvium
 - d) None
- 2) The momentum correction factor, β is given as _____.
 - a) $1/V^2 A \int V^3 \cdot dA$
 - b) $1/VA \int V \cdot dA$
 - c) $1/V^3 A \int V^2 \cdot dA$
 - d) $1/V^2 A \int V^2 \cdot dA$
- 3) The mean velocity in Lacey's regime channel is proportional to _____.
 - a) $11 R^{1/2} S_0^{1/2}$
 - b) $10.8 D^{2/3} S_0^{1/3}$
 - c) $11 D S_0$
 - d) None
- 4) Shield's diagram is a plot of non dimensional shear stress (τ_c) against _____.
 - a) Relative depth
 - b) Shear Reynold's number
 - c) Hydraulic radius
 - d) Reynold's number
- 5) Extreme condition of meanders is called as _____.
 - a) Levee
 - b) Spurs
 - c) Cut-off
 - d) Island
- 6) River training work serves the following purposes _____.
 - a) Protect the river bed and banks
 - b) Direct the river flow in desired condition
 - c) Increase or decrease of the river discharge
 - d) Protect the surrounding land from flooding
- 7) River gauge is used to measure _____.
 - a) Still level
 - b) Water level
 - c) Turbulence
 - d) Current
- 8) Distorted models are required to be prepared for _____.
 - a) Rivers
 - b) Commercial buildings
 - c) Residential buildings
 - d) None

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Open Channel flow & River Hydraulics (BTN01617)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat sketches wherever necessary.
4) Use of non-programmable calculator is permitted.

Section –I

Q.2 Attempt any four.

16

- The velocity distribution in rectangular channel of width 'B' and depth 'Yo' was approximated as $V = K1\sqrt{y}$ Where $k1 = \text{constant}$; calculate the average velocity for the crosssection and correction coefficient ' α ' & ' β '.
- A 3.6m wide rectangular channel convey's 10 m³/s of water with velocity 6 m/s. state is there formation of hydraulic jump if yes calculate height, length and strength of Jump and what is loss of energy per kg of water.
- Derive the modified GVF equation and draw a neat sketch and show all details.
- A flow of 6.0 m³/s is passing at a depth of 1.5 m. through a rectangular channel of width 2.5 m. If ' α ' is 1.1 Determine specific energy of flow also determine the value of the depth alternative to the existing depth. If ' α ' = 1.0 (assumed for alternate depth flow).
- What do you understand by most economical channel section? and show that for trapezoidal section Half of top width= Length of one of sloping side and hydraulic mean depth= half the depth of flow.

Q.3 Attempt any two.

12

- Define kinetic energy correction=factor (α) and momentum correction factor (β) and derive their expressions.
- A discharge of 840 m³/s flows down a spillway and then passes on a 60 m. Wide concrete apron($n= 0.014$) the velocity of water at the toe of spillway is 10 m/s. A tail water depth of 4.40 m the channel below causes a hydraulic jump on the horizontal apron. Determine
 - Depth before the jump
 - Length of jump
 - Energy loss in jump
 - Specific force at the toe
- Derive the equation for loss of energy through Hydraulic Jump.

Section – II

Q.4 Attempt Any Four**16**

- a) Explain
 - i) Regime channel
 - ii) Bed load and its measurement
- b) Derive 'Reynold's model law' and state giving examples where it can be used.
- c) What do you understand by similarity? Explain Dynamic similarity.
- d) Draw a neat sketch of Current meter and explain its working in details.
- e) Design a regime channel by using lacey's theory from the data, discharge= $50 \text{ m}^3/\text{s}$ and silt factor =1.12 (Assume suitable data wherever necessary)

Q.5 Attempt Any Two**12**

- a) Write short notes on:
 - i) Cut-off
 - ii) River training works
- b) Differentiate between Kennedy's theory and Lacey' theory for channel design.
- c) A model of water meter is tested in 90 mm diameter pipe. The discharge was 50 lit/sec and pressure difference is 0.11 N/mm^2 . What will be the discharge in pipe of 450 mm diameter pipe and what will be the pressure.

- 9) Organic matter, which can be decomposed by bacteria is known as _____.
a) Biodegradable organic matter b) Degradation
c) Eutrophication d) Decomposers
- 10) Substances that emit ionizing radiation are defined as _____.
a) Hazardous wastes b) Biological wastes
c) Flammable wastes d) Radioactive wastes
- 11) Household hazardous waste includes batteries and _____.
a) Radioactive waste b) Food waste
c) Leachate d) Nail polish
- 12) Sanitary landfill may not cause troubles during _____.
a) Peak summers b) Peak winters
c) Peak monsoons d) None of these
- 13) Which of the following is anaerobic method of leachate treatment?
a) Aerated lagoon
b) Activated Sludge Process
c) up flow Sludge biological reactor
d) Trickling filter
- 14) Important aspect in the implementation of sanitary landfills includes _____.
a) Site Selection
b) Land filling methods
c) Movemen and control of land fill and leachate
d) All the above

Seat No.	
----------	--

Set **P**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Solid and Hazardous Waste Management (BTN01618)

Day & Date: Monday, 27-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 a)** Estimate the moisture content of solid waste sample of 100 kg using the following data. **05**

Sr. No.	Component	% by mass	% by M.C.
1	Food waste	16	65
2	Paper	36	08
3	Cardboards	05	05
4	Plastics	10	02
5	Grass	12	55
6	Wood	08	04
7	Metals	13	03

- b)** Explain with sketch impact of solid waste on environment. **05**

- Q.3 a)** Explain the functional elements of municipal solid waste management with flow diagram. **05**

- b)** Explain theory of composting in brief. **04**

- Q.4 a)** Distinguish between Indore method and Bangalore method. **05**

- b)** Explain with sketch Hauled container method of collection of solid waste. **04**

- Q.5 a)** Explain factors affecting composting process. **05**

- b)** Explain different types and sources of solid waste. **04**

Section – II

- Q.6 a)** Define Hazardous waste? State and explain characteristic of hazardous waste. **05**

- b)** Write note on "Risk Management". **05**

- Q.7 a)** Explain with sketch two methods for leachate treatment. **05**

- b)** Draw the Cross section of sanitary land fill and explain components. **04**

- | | | |
|------------|-------------------------------------------------------------------------------------|-----------|
| Q.8 | a) Explain in detail natural and man-made Hazard. | 05 |
| | b) Explain types of Hazardous Waste. | 04 |
| Q.9 | a) Explain in details any one hazard episode. | 05 |
| | b) Explain in brief how you will minimize the damage due to Man-made hazard. | 04 |

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Solid and Hazardous Waste Management (BTN01618)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) MRF's term in SWM is used for _____.
a) Material Recovery Facilities b) Major Relief Fund
c) Minimum Raw Food d) None of these
- 2) Organic matter, which can be decomposed by bacteria is known as _____.
a) Biodegradable organic matter b) Degradation
c) Eutrophication d) Decomposers
- 3) Substances that emit ionizing radiation are defined as _____.
a) Hazardous wastes b) Biological wastes
c) Flammable wastes d) Radioactive wastes
- 4) Household hazardous waste includes batteries and _____.
a) Radioactive waste b) Food waste
c) Leachate d) Nail polish
- 5) Sanitary landfill may not cause troubles during _____.
a) Peak summers b) Peak winters
c) Peak monsoons d) None of these
- 6) Which of the following is anaerobic method of leachate treatment?
a) Aerated lagoon
b) Activated Sludge Process
c) up flow Sludge biological reactor
d) Trickling filter
- 7) Important aspect in the implementation of sanitary landfills includes _____.
a) Site Selection
b) Land filling methods
c) Movemen and control of land fill and leachate
d) All the above
- 8) The method of refuse disposal, involving burial in trenches, is called _____.
a) incineration b) pulverization
c) composting d) none

Seat No.	
----------	--

Set **Q**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Solid and Hazardous Waste Management (BTN01618)

Day & Date: Monday, 27-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 a)** Estimate the moisture content of solid waste sample of 100 kg using the following data. **05**

Sr. No.	Component	% by mass	% by M.C.
1	Food waste	16	65
2	Paper	36	08
3	Cardboards	05	05
4	Plastics	10	02
5	Grass	12	55
6	Wood	08	04
7	Metals	13	03

- b)** Explain with sketch impact of solid waste on environment. **05**

- Q.3 a)** Explain the functional elements of municipal solid waste management with flow diagram. **05**

- b)** Explain theory of composting in brief. **04**

- Q.4 a)** Distinguish between Indore method and Bangalore method. **05**

- b)** Explain with sketch Hauled container method of collection of solid waste. **04**

- Q.5 a)** Explain factors affecting composting process. **05**

- b)** Explain different types and sources of solid waste. **04**

Section – II

- Q.6 a)** Define Hazardous waste? State and explain characteristic of hazardous waste. **05**

- b)** Write note on "Risk Management". **05**

- Q.7 a)** Explain with sketch two methods for leachate treatment. **05**

- b)** Draw the Cross section of sanitary land fill and explain components. **04**

- | | | |
|------------|-------------------------------------------------------------------------------------|-----------|
| Q.8 | a) Explain in detail natural and man-made Hazard. | 05 |
| | b) Explain types of Hazardous Waste. | 04 |
| Q.9 | a) Explain in details any one hazard episode. | 05 |
| | b) Explain in brief how you will minimize the damage due to Man-made hazard. | 04 |

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Solid and Hazardous Waste Management (BTN01618)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Household hazardous waste includes batteries and _____.
 a) Radioactive waste b) Food waste
 c) Leachate d) Nail polish
- 2) Sanitary landfill may not cause troubles during _____.
 a) Peak summers b) Peak winters
 c) Peak monsoons d) None of these
- 3) Which of the following is anaerobic method of leachate treatment?
 a) Aerated lagoon
 b) Activated Sludge Process
 c) up flow Sludge biological reactor
 d) Trickling filter
- 4) Important aspect in the implementation of sanitary landfills includes _____.
 a) Site Selection
 b) Land filling methods
 c) Movemen and control of land fill and leachate
 d) All the above
- 5) The method of refuse disposal, involving burial in trenches, is called _____.
 a) incineration b) pulverization
 c) composting d) none
- 6) The aerobic method of mechanical composting, as practiced in India, is called the _____.
 a) Bangalore method b) Nagpur method
 c) Bopal method d) Indore method
- 7) Sanitary landfills may cause troubles during _____.
 a) peak summers b) peak winters
 c) peak monsoons d) non
- 8) Leachate is a coloured liquid, that comes out of _____.
 a) septic tanks b) sanitary landfills
 c) compost plants d) aerated lagoons

- 9) Biomedical wastes consist of _____.
a) solid wastes b) liquid wastes
c) both (a) & (b) d) none
- 10) The approximate quantity of biomedical waste generated in Indian hospitals per patient per day approximates to _____.
a) 0.5Kg b) 0.75Kg
c) 1.45kg d) 4.0kg
- 11) Biomedical waste were enacted in India under Environment Protection Act, in the year _____.
a) 1986 b) 1989
c) 1998 d) 2000
- 12) MRF's term in SWM is used for _____.
a) Material Recovery Facilities b) Major Relief Fund
c) Minimum Raw Food d) None of these
- 13) Organic matter, which can be decomposed by bacteria is known as _____.
a) Biodegradable organic matter b) Degradation
c) Eutrophication d) Decomposers
- 14) Substances that emit ionizing radiation are defined as _____.
a) Hazardous wastes b) Biological wastes
c) Flammable wastes d) Radioactive wastes

Seat No.	
----------	--

Set **R**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Solid and Hazardous Waste Management (BTN01618)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 a)** Estimate the moisture content of solid waste sample of 100 kg using the following data. **05**

Sr. No.	Component	% by mass	% by M.C.
1	Food waste	16	65
2	Paper	36	08
3	Cardboards	05	05
4	Plastics	10	02
5	Grass	12	55
6	Wood	08	04
7	Metals	13	03

- b)** Explain with sketch impact of solid waste on environment. **05**

- Q.3 a)** Explain the functional elements of municipal solid waste management with flow diagram. **05**

- b)** Explain theory of composting in brief. **04**

- Q.4 a)** Distinguish between Indore method and Bangalore method. **05**

- b)** Explain with sketch Hauled container method of collection of solid waste. **04**

- Q.5 a)** Explain factors affecting composting process. **05**

- b)** Explain different types and sources of solid waste. **04**

Section – II

- Q.6 a)** Define Hazardous waste? State and explain characteristic of hazardous waste. **05**

- b)** Write note on "Risk Management". **05**

- Q.7 a)** Explain with sketch two methods for leachate treatment. **05**

- b)** Draw the Cross section of sanitary land fill and explain components. **04**

- | | | |
|------------|-------------------------------------------------------------------------------------|-----------|
| Q.8 | a) Explain in detail natural and man-made Hazard. | 05 |
| | b) Explain types of Hazardous Waste. | 04 |
| Q.9 | a) Explain in details any one hazard episode. | 05 |
| | b) Explain in brief how you will minimize the damage due to Man-made hazard. | 04 |

- 9) Important aspect in the implementation of sanitary landfills includes _____.
a) Site Selection
b) Land filling methods
c) Movemen and control of land fill and leachate
d) All the above
- 10) The method of refuse disposal, involving burial in trenches, is called _____.
a) incineration
b) pulverization
c) composting
d) none
- 11) The aerobic method of mechanical composting, as practiced in India, is called the _____.
a) Bangalore method
b) Nagpur method
c) Bopal method
d) Indore method
- 12) Sanitary landfills may cause troubles during _____.
a) peak summers
b) peak winters
c) peak monsoons
d) non
- 13) Leachate is a coloured liquid, that comes out of _____.
a) septic tanks
b) sanitary landfills
c) compost plants
d) aerated lagoons
- 14) Biomedical wastes consist of _____.
a) solid wastes
b) liquid wastes
c) both (a) & (b)
d) none

Seat No.	
----------	--

Set **S**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Solid and Hazardous Waste Management (BTN01618)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 a)** Estimate the moisture content of solid waste sample of 100 kg using the following data. **05**

Sr. No.	Component	% by mass	% by M.C.
1	Food waste	16	65
2	Paper	36	08
3	Cardboards	05	05
4	Plastics	10	02
5	Grass	12	55
6	Wood	08	04
7	Metals	13	03

- b)** Explain with sketch impact of solid waste on environment. **05**

- Q.3 a)** Explain the functional elements of municipal solid waste management with flow diagram. **05**

- b)** Explain theory of composting in brief. **04**

- Q.4 a)** Distinguish between Indore method and Bangalore method. **05**

- b)** Explain with sketch Hauled container method of collection of solid waste. **04**

- Q.5 a)** Explain factors affecting composting process. **05**

- b)** Explain different types and sources of solid waste. **04**

Section – II

- Q.6 a)** Define Hazardous waste? State and explain characteristic of hazardous waste. **05**

- b)** Write note on "Risk Management". **05**

- Q.7 a)** Explain with sketch two methods for leachate treatment. **05**

- b)** Draw the Cross section of sanitary land fill and explain components. **04**

- | | | | |
|------------|-----------|---------------------------------------------------------------------------|-----------|
| Q.8 | a) | Explain in detail natural and man-made Hazard. | 05 |
| | b) | Explain types of Hazardous Waste. | 04 |
| Q.9 | a) | Explain in details any one hazard episode. | 05 |
| | b) | Explain in brief how you will minimize the damage due to Man-made hazard. | 04 |

Seat No.	
----------	--

Set

P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Concrete Structures II (BTN01603)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Use of IS 456, IS 1343 and IS 3370 part IV and non-programmable calculator is allowed.
4) Draw neat sketches where required and assume suitable data if required and state it clearly.

Section – I

- Q.2** Design an open well type stair for a Hospital building using the following data; **08**
Floor to floor height is = 3.15 m, No. of flights per floor = 3, size of steps = 150 mm riser and 300 mm tread. Landing are supported all around by walls and by beams of width 230 mm at floor levels, thickness of wall is 230 mm. Use M20 concrete and Fe415 steel.
- Q.3** Design a rectangular footing for column axially loaded of size 400 mm × 500 mm carrying 1280kN load. The SBC of soil is 190kN/m². Use M20 concrete and Fe500 steel. Sketch the details of reinforcement. **10**
- Q.4** Design the stem slab of a counter fort retaining wall, if the height of wall above the ground level is 6.5 m. SBC of soil is 200 kN/m², angle of internal friction is 30° and unit weight of back fill soil 20 kN/m². Keep spacing of counter fort as 3.5 m. Coefficient of friction between soil and concrete is 0.5. Use M20 concrete and Fe415 steel. **10**
- Q.5** Design a circular water tank resting on firm ground is fixed at base and free at top with following details : **10**
Dia. of tank 3.2 m, depth of water 3.0 m, the wall and base are not monolithic with each other, specific weight of water 9810 N/m³. Use M25 concrete and Fe500 steel. Assume free board of 250 mm and solve by IS code method.

Section – II

- Q.6** A beam of symmetrical I section spanning 8m has a flange width of 200mm & flange thickness of 60mm respectively. The overall depth of beam is 400mm, Thickness of web is 80mm. the beam is prestressed by a parabolic cable with eccentricity of 125mm at the center & zero at support with an effective force of 110kN. The live load on beam is 2000N/m. Draw the stress distribution diagram at the mid span section for the following condition **08**
1) Press stress with self-weight
2) Press stress with self-weight & live load

- Q.7** A pretensioned concrete beam of 250 mm × 380 mm is provided with 10 m span. The beam is prestressed by steel wires of area 350 mm² provided at a uniform eccentricity of 60 mm with an initial prestress of 1200 N/mm². Determine the percentage loss of stress in the wires. $E_s = 2.1 \times 10^5$ N/mm², $E_c = 3.5 \times 10^5$ N/mm², Ultimate creep strain = 45×10^{-6} mm/mm per N/mm². Shrinkage of concrete = 300×10^{-6} Relaxation loss percentage = 5%. **10**
- Q.8** Design PSC I section beam for the following span=14m, superimposed load of 32 kN/m, cube strength of concrete at 28 days is 35kN/m², safe stress in concrete at transfer= 0.45 fck, allowable tensile stress in concrete is $0.129\sqrt{(fck)}$, safe stress in steel is 60 % of ultimate stress, total loss of stress 18%, ultimate stress in steel 1420 MPa. **10**
- Q.9** A PSC beam 250 mm × 600 mm is subjected to an effective prestressing force of 1400 kN along the longitudinal centroidal axis. Design the end block by Guyon's method. **10**

Seat No.	
----------	--

Set Q

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures II (BTN01603)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) While solving MCQ, IS 456-2000, IS 3370 and IS 1343 are not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

- Q.1 Choose the correct alternatives from the options. 14**
- 1) Which of retaining wall is suitable for height beyond 6 m? 01
 - a) L-Shape wall
 - b) T-Shape wall
 - c) Counterfort type
 - d) All of above
 - 2) The prestress loss of prestress due to anchorage slip of 3mm in concrete beam of length of 30m which is post-tensioned by a tendon with an initial stress of 1200 N/mm² and modulus of elasticity equal to 2.1×10^5 N/mm² is _____. 01
 - a) 0.0175
 - b) 0.175
 - c) 1.75
 - d) 17.5
 - 3) 'P' is the pre-stressed force applied to tendon of a rectangular pre-stressed beam whose area of cross section is (A) and sectional modulus is (Z). The minimum stress on the beam subjected to a maximum bending moment is _____. 01
 - a) $f = (P/A) - (Z/M)$
 - b) $f = (A/P) - (M/Z)$
 - c) $f = (P/A) - (M/Z)$
 - d) $f = (P/A) - (M/6Z)$
 - 4) The loss of stress due to curvature effect depends upon _____. 01
 - a) Alignment
 - b) Midpoint
 - c) Centerline
 - d) Exterior point
 - 5) The loss of prestress due to elastic shortening of concrete is least in _____. 01
 - a) One wire pre-tensioned beam
 - b) One wire post-tensioned beam
 - c) Multiple wire pre-tensioned beam with sequential cutting of wire
 - d) Multiple wire post-tensioned beam subjected to sequential prestressing
 - 6) A pressed concrete rectangular beam size 300mm × 900mm is prestressed with an initial 350mm at midspan. Stress at bottom beam section due to prestress alone in N/mm² _____. 02
 - a) -3.46(tension)
 - b) 2.59(compression)
 - c) Zero
 - d) 8.64(compression)

- 7) The horizontal portion of a step in a stairs case, is known as _____. 01
a) Rise b) Tread
c) Winder d) Flight
- 8) In stair case design find weight of waist slab per meter run if thickness of slab is 280mm, Riser of 125mm and tread of 275mm and unit weight of concrete is 2500kg/m^3 _____. 02
a) 7.69 kN/m b) 12.52 kN/m
c) 8.57 kN/m d) 8.73 kN/m
- 9) An RC square footing of side length 2m & uniform effective depth 200mm is provided for a $300\text{mm} \times 300\text{mm}$ column. The line of action of the vertical compressive load passes through the centroid of the footing as well as of the column. If the magnitude of the load is 320kN, the nominal transverse (one way) shear stress in the footing is _____. 02
a) 0.30N/mm^2 b) 0.34N/mm^2
c) 0.75N/mm^2 d) 0.26N/mm^2
- 10) In design of isolated footing critical section of one way shear is at a distance _____. 01
a) 'd' distance from the face of the column
b) 'd/2' distance from the face of the column
c) 'd/4' distance from the face of the column
d) at the face of the column
- 11) If W is weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding, is _____. 01
a) 1 b) 1.5
c) 1.25 d) 2

Seat No.	
-------------	--

Set

Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Concrete Structures II (BTN01603)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Use of IS 456, IS 1343 and IS 3370 part IV and non-programmable calculator is allowed.
 - 4) Draw neat sketches where required and assume suitable data if required and state it clearly.

Section – I

- Q.2** Design an open well type stair for a Hospital building using the following data; **08**
Floor to floor height is = 3.15 m, No. of flights per floor = 3, size of steps = 150 mm riser and 300 mm tread. Landing are supported all around by walls and by beams of width 230 mm at floor levels, thickness of wall is 230 mm. Use M20 concrete and Fe415 steel.
- Q.3** Design a rectangular footing for column axially loaded of size 400 mm × 500 mm carrying 1280kN load. The SBC of soil is 190kN/m². Use M20 concrete and Fe500 steel. Sketch the details of reinforcement. **10**
- Q.4** Design the stem slab of a counter fort retaining wall, if the height of wall above the ground level is 6.5 m. SBC of soil is 200 kN/m², angle of internal friction is 30° and unit weight of back fill soil 20 kN/m². Keep spacing of counter fort as 3.5 m. Coefficient of friction between soil and concrete is 0.5. Use M20 concrete and Fe415 steel. **10**
- Q.5** Design a circular water tank resting on firm ground is fixed at base and free at top with following details : **10**
Dia. of tank 3.2 m, depth of water 3.0 m, the wall and base are not monolithic with each other, specific weight of water 9810 N/m³. Use M25 concrete and Fe500 steel. Assume free board of 250 mm and solve by IS code method.

Section – II

- Q.6** A beam of symmetrical I section spanning 8m has a flange width of 200mm & flange thickness of 60mm respectively. The overall depth of beam is 400mm, Thickness of web is 80mm. the beam is prestressed by a parabolic cable with eccentricity of 125mm at the center & zero at support with an effective force of 110kN. The live load on beam is 2000N/m. Draw the stress distribution diagram at the mid span section for the following condition **08**
- 1) Press stress with self-weight
 - 2) Press stress with self-weight & live load

- Q.7** A pretensioned concrete beam of 250 mm × 380 mm is provided with 10 m span. The beam is prestressed by steel wires of area 350 mm² provided at a uniform eccentricity of 60 mm with an initial prestress of 1200 N/mm². Determine the percentage loss of stress in the wires. $E_s = 2.1 \times 10^5$ N/mm², $E_c = 3.5 \times 10^5$ N/mm², Ultimate creep strain = 45×10^{-6} mm/mm per N/mm². Shrinkage of concrete = 300×10^{-6} Relaxation loss percentage = 5%. **10**
- Q.8** Design PSC I section beam for the following span=14m, superimposed load of 32 kN/m, cube strength of concrete at 28 days is 35kN/m², safe stress in concrete at transfer= 0.45 fck, allowable tensile stress in concrete is $0.129\sqrt{(fck)}$, safe stress in steel is 60 % of ultimate stress, total loss of stress 18%, ultimate stress in steel 1420 MPa. **10**
- Q.9** A PSC beam 250 mm × 600 mm is subjected to an effective prestressing force of 1400 kN along the longitudinal centroidal axis. Design the end block by Guyon's method. **10**

- 7) In design of isolated footing critical section of one way share is at a distance _____. 01
a) 'd' distance from the face of the column
b) 'd/2' distance from the face of the column
c) 'd/4' distance from the face of the column
d) at the face of the column
- 8) If W is weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding, is _____. 01
a) 1
b) 1.5
c) 1.25
d) 2
- 9) Which of retaining wall is suitable for height beyond 6 m? 01
a) L-Shape wall
b) T-Shape wall
c) Counterfort type
d) All of above
- 10) The prestress loss of prestress due to anchorage slip of 3mm in concrete beam of length of 30m which is post-tensioned by a tendon with an initial stress of 1200 N/mm^2 and modulus of elasticity equal to $2.1 \times 10^5 \text{ N/mm}^2$ is _____. 01
a) 0.0175
b) 0.175
c) 1.75
d) 17.5
- 11) 'P' is the pre-stressed force applied to tendon of a rectangular pre-stressed beam whose area of cross section is (A) and sectional modulus is (Z). The minimum stress on the beam subjected to a maximum bending moment is _____. 01
a) $f = (P/A) - (Z/M)$
b) $f = (A/P) - (M/Z)$
c) $f = (P/A) - (M/Z)$
d) $f = (P/A) - (M/6Z)$

Seat No.	
-------------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Concrete Structures II (BTN01603)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Use of IS 456, IS 1343 and IS 3370 part IV and non-programmable calculator is allowed.
4) Draw neat sketches where required and assume suitable data if required and state it clearly.

Section – I

- Q.2** Design an open well type stair for a Hospital building using the following data; **08**
Floor to floor height is = 3.15 m, No. of flights per floor = 3, size of steps = 150 mm riser and 300 mm tread. Landing are supported all around by walls and by beams of width 230 mm at floor levels, thickness of wall is 230 mm. Use M20 concrete and Fe415 steel.
- Q.3** Design a rectangular footing for column axially loaded of size 400 mm × 500 mm carrying 1280kN load. The SBC of soil is 190kN/m². Use M20 concrete and Fe500 steel. Sketch the details of reinforcement. **10**
- Q.4** Design the stem slab of a counter fort retaining wall, if the height of wall above the ground level is 6.5 m. SBC of soil is 200 kN/m², angle of internal friction is 30° and unit weight of back fill soil 20 kN/m². Keep spacing of counter fort as 3.5 m. Coefficient of friction between soil and concrete is 0.5. Use M20 concrete and Fe415 steel. **10**
- Q.5** Design a circular water tank resting on firm ground is fixed at base and free at top with following details : **10**
Dia. of tank 3.2 m, depth of water 3.0 m, the wall and base are not monolithic with each other, specific weight of water 9810 N/m³. Use M25 concrete and Fe500 steel. Assume free board of 250 mm and solve by IS code method.

Section – II

- Q.6** A beam of symmetrical I section spanning 8m has a flange width of 200mm & flange thickness of 60mm respectively. The overall depth of beam is 400mm, Thickness of web is 80mm. the beam is prestressed by a parabolic cable with eccentricity of 125mm at the center & zero at support with an effective force of 110kN. The live load on beam is 2000N/m. Draw the stress distribution diagram at the mid span section for the following condition **08**
1) Press stress with self-weight
2) Press stress with self-weight & live load

- Q.7** A pretensioned concrete beam of 250 mm × 380 mm is provided with 10 m span. The beam is prestressed by steel wires of area 350 mm² provided at a uniform eccentricity of 60 mm with an initial prestress of 1200 N/mm². Determine the percentage loss of stress in the wires. $E_s = 2.1 \times 10^5$ N/mm², $E_c = 3.5 \times 10^5$ N/mm², Ultimate creep strain = 45×10^{-6} mm/mm per N/mm². Shrinkage of concrete = 300×10^{-6} Relaxation loss percentage = 5%. **10**
- Q.8** Design PSC I section beam for the following span=14m, superimposed load of 32 kN/m, cube strength of concrete at 28 days is 35kN/m², safe stress in concrete at transfer= 0.45 fck, allowable tensile stress in concrete is $0.129\sqrt{(fck)}$, safe stress in steel is 60 % of ultimate stress, total loss of stress 18%, ultimate stress in steel 1420 MPa. **10**
- Q.9** A PSC beam 250 mm × 600 mm is subjected to an effective prestressing force of 1400 kN along the longitudinal centroidal axis. Design the end block by Guyon's method. **10**

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures II (BTN01603)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) While solving MCQ, IS 456-2000, IS 3370 and IS 1343 are not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

- Q.1 Choose the correct alternatives from the options. 14**
- 1) In design of isolated footing critical section of one way share is at a distance _____. 01
 - a) 'd' distance from the face of the column
 - b) 'd/2' distance from the face of the column
 - c) 'd/4' distance from the face of the column
 - d) at the face of the column
 - 2) If W is weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding, is _____. 01
 - a) 1
 - b) 1.5
 - c) 1.25
 - d) 2
 - 3) Which of retaining wall is suitable for height beyond 6 m? 01
 - a) L-Shape wall
 - b) T-Shape wall
 - c) Counterfort type
 - d) All of above
 - 4) The prestress loss of prestress due to anchorage slip of 3mm in concrete beam of length of 30m which is post-tensioned by a tendon with an initial stress of 1200 N/mm² and modulus of elasticity equal to 2.1×10^5 N/mm² is _____. 01
 - a) 0.0175
 - b) 0.175
 - c) 1.75
 - d) 17.5
 - 5) 'P' is the pre-stressed force applied to tendon of a rectangular pre-stressed beam whose area of cross section is (A) and sectional modulus is (Z). The minimum stress on the beam subjected to a maximum bending moment is _____. 01
 - a) $f = (P/A) - (Z/M)$
 - b) $f = (A/P) - (M/Z)$
 - c) $f = (P/A) - (M/Z)$
 - d) $f = (P/A) - (M/6Z)$
 - 6) The loss of stress due to curvature effect depends upon _____. 01
 - a) Alignment
 - b) Midpoint
 - c) Centerline
 - d) Exterior point

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Design of Concrete Structures II (BTN01603)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Use of IS 456, IS 1343 and IS 3370 part IV and non-programmable calculator is allowed.
 - 4) Draw neat sketches where required and assume suitable data if required and state it clearly.

Section – I

- Q.2** Design an open well type stair for a Hospital building using the following data; **08**
Floor to floor height is = 3.15 m, No. of flights per floor = 3, size of steps = 150 mm riser and 300 mm tread. Landing are supported all around by walls and by beams of width 230 mm at floor levels, thickness of wall is 230 mm. Use M20 concrete and Fe415 steel.
- Q.3** Design a rectangular footing for column axially loaded of size 400 mm × 500 mm carrying 1280kN load. The SBC of soil is 190kN/m². Use M20 concrete and Fe500 steel. Sketch the details of reinforcement. **10**
- Q.4** Design the stem slab of a counter fort retaining wall, if the height of wall above the ground level is 6.5 m. SBC of soil is 200 kN/m², angle of internal friction is 30° and unit weight of back fill soil 20 kN/m². Keep spacing of counter fort as 3.5 m. Coefficient of friction between soil and concrete is 0.5. Use M20 concrete and Fe415 steel. **10**
- Q.5** Design a circular water tank resting on firm ground is fixed at base and free at top with following details : **10**
Dia. of tank 3.2 m, depth of water 3.0 m, the wall and base are not monolithic with each other, specific weight of water 9810 N/m³. Use M25 concrete and Fe500 steel. Assume free board of 250 mm and solve by IS code method.

Section – II

- Q.6** A beam of symmetrical I section spanning 8m has a flange width of 200mm & flange thickness of 60mm respectively. The overall depth of beam is 400mm, Thickness of web is 80mm. the beam is prestressed by a parabolic cable with eccentricity of 125mm at the center & zero at support with an effective force of 110kN. The live load on beam is 2000N/m. Draw the stress distribution diagram at the mid span section for the following condition **08**
- 1) Press stress with self-weight
 - 2) Press stress with self-weight & live load

- Q.7** A pretensioned concrete beam of 250 mm × 380 mm is provided with 10 m span. The beam is prestressed by steel wires of area 350 mm² provided at a uniform eccentricity of 60 mm with an initial prestress of 1200 N/mm². Determine the percentage loss of stress in the wires. $E_s = 2.1 \times 10^5$ N/mm², $E_c = 3.5 \times 10^5$ N/mm², Ultimate creep strain = 45×10^{-6} mm/mm per N/mm². Shrinkage of concrete = 300×10^{-6} Relaxation loss percentage = 5%. **10**
- Q.8** Design PSC I section beam for the following span=14m, superimposed load of 32 kN/m, cube strength of concrete at 28 days is 35kN/m², safe stress in concrete at transfer= 0.45 fck, allowable tensile stress in concrete is $0.129\sqrt{(fck)}$, safe stress in steel is 60 % of ultimate stress, total loss of stress 18%, ultimate stress in steel 1420 MPa. **10**
- Q.9** A PSC beam 250 mm × 600 mm is subjected to an effective prestressing force of 1400 kN along the longitudinal centroidal axis. Design the end block by Guyon's method. **10**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
3) Assume suitable data wherever necessary & mention it clearly.
4) Use of Non-Programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) _____ is the process of taking the necessary preventive and corrective action to ensure that organizational objectives are achieved as effectively as possible.

a) Planning	b) Staffing
c) Controlling	d) Directing
- 2) MBO means _____.

a) Management by objective	b) Manager Behavioural Organisation
c) Management By Order	d) None
- 3) Graphical method to solve linear programming problem is commonly used if _____.

a) no. of decision variables is two	b) no. of decision variables is three
c) no. of decision variables is four	d) no. of decision variables is one
- 4) Dual of the Dual is _____.

a) Primal	b) Dual
c) Zero	d) Infinity
- 5) The top most row in the simplex matrix is called _____.

a) variable row	b) objective row
c) constraint row	d) none
- 6) Games without a saddle point require players to play _____.

a) Pure strategy	b) Mixed strategy
c) Market strategy	d) None
- 7) Game theory models are classified by the _____.

a) number of players	b) sum of all payoffs
c) number of strategies	d) all of the above
- 8) Lean construction includes _____.

a) Adding value added things	b) removing non value added things
c) minimizing the waste	d) all of the above

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever necessary & mention it clearly.
4) Use of Non-Programmable calculator is allowed.

Section – I

Q.2 Solve any three of following.

24

- a) Write a short note on
i) Centralization and Decentralization in management
ii) Explain Process of planning
- b) Obtain the initial basic feasible solution of a transportation problem whose cost and requirement table is as below, solve by North west corner Method.

Origin / Destination	D1	D2	D3	Supply
O1	2	7	4	5
O2	3	3	1	8
O3	5	4	7	7
O4	1	6	2	14
Demand	7	9	18	

- c) Solve the Assignment problem by using Assignment (Hungarian Method), Assign the jobs for different machines so as to minimize the total cost.

Job	Machine			
	A	B	C	D
1	8	26	17	11
2	13	28	4	26
3	38	19	18	15
4	19	26	24	10

- d) Solve by,
i) Hurwicz criterion Assume $A=0.8$
ii) Laplace Criterion

ALTERNATIVES	STATE OF NATURE (PRODUCT DEMAND)			
	HIGH	MODERATE	LOW	NIL
EXPAND	50,000	25,000	-25,000	-45,000
CONSTRUCT	70,000	30,000	-40,000	-80,000
SUBCONTRACT	30,000	15,000	-1,000	-10,000

- e) Solve the following.
i) Importance of Lean Construction.
ii) Why is there a need for Productivity measurement and Improvement?

Q.3 Write any one of the following.

- Explain Functions of Management that make the management process.
- Write a short note on Games Theory

Section – II

Q.4 Solve any three of following.

- a) Find The A Class, B Class And C Class Material, for following draw the Graph.

Item Number	Annual Consumption in unit	Unit Price in Paise
501	30000	10
502	280000	15
503	3000	10
504	110000	5
505	4000	5
506	220000	10
507	15000	5
508	80000	5
509	60000	15
510	8000	10

- Write a short Note on.
 - EOQ
 - Safety Stock
- Write a short note on Construction ERP and safety measures in ERP.
- A company manufactures screws to a nominal diameter $0.500 \pm 0.030\text{cm}$. Five samples were taken randomly from a manufactured lot and three measurements were taken for each sample at different lengths. The reading table is as below Calculate the control limits on \bar{x} chart and Draw \bar{x} chart.
Assume $n = 3, A2 = 1.02, D4 = 2.57, D3 = 0$

Sample no	Measurements per sample cm (x)		
	1	2	3
1	0.488	0.489	0.505
2	0.494	0.495	0.499
3	0.498	0.515	0.487
4	0.492	0.509	0.514
5	0.490	0.508	0.499

- Write a short note on Control charts (\bar{x}, R, p, c) in statistical quality control.

Q.5 Write a short note on any one of following.

- Break even analysis
- Inventory control

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
3) Assume suitable data wherever necessary & mention it clearly.
4) Use of Non-Programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Lean construction includes _____.
 - a) Adding value added things
 - b) removing non value added things
 - c) minimizing the waste
 - d) all of the above
- 2) The cost of keeping items in inventory is called _____.
 - a) Set up cost
 - b) Holding cost
 - c) Finished cost
 - d) None of these
- 3) _____ stock is the lower limit of stock below which the stock should not be allowed to fall.
 - a) Maximum
 - b) Average
 - c) Safety
 - d) Standard
- 4) Average chart & range chart are for _____.
 - a) Attributes
 - b) Variables
 - c) Both
 - d) None
- 5) Sampling is the process of determining the quality of a _____.
 - a) Large group from a small part
 - b) Small part from a large group
 - c) Small group from a small part
 - d) Small group at random
- 6) An enterprise is a group of people with _____.
 - a) common goal
 - b) separate goal for each department
 - c) multiple goals
 - d) two or more goals
- 7) _____ is a key issue in the formation of strategic plans in companies.
 - a) Computerized
 - b) Quantity
 - c) Quality
 - d) Flexibility

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever necessary & mention it clearly.
4) Use of Non-Programmable calculator is allowed.

Section – I

Q.2 Solve any three of following.

24

- a) Write a short note on
i) Centralization and Decentralization in management
ii) Explain Process of planning
- b) Obtain the initial basic feasible solution of a transportation problem whose cost and requirement table is as below, solve by North west corner Method.

Origin / Destination	D1	D2	D3	Supply
O1	2	7	4	5
O2	3	3	1	8
O3	5	4	7	7
O4	1	6	2	14
Demand	7	9	18	

- c) Solve the Assignment problem by using Assignment (Hungarian Method), Assign the jobs for different machines so as to minimize the total cost.

Job	Machine			
	A	B	C	D
1	8	26	17	11
2	13	28	4	26
3	38	19	18	15
4	19	26	24	10

- d) Solve by,
i) Hurwicz criterion Assume $A=0.8$
ii) Laplace Criterion

ALTERNATIVES	STATE OF NATURE (PRODUCT DEMAND)			
	HIGH	MODERATE	LOW	NIL
EXPAND	50,000	25,000	-25,000	-45,000
CONSTRUCT	70,000	30,000	-40,000	-80,000
SUBCONTRACT	30,000	15,000	-1,000	-10,000

- e) Solve the following.
i) Importance of Lean Construction.
ii) Why is there a need for Productivity measurement and Improvement?

Q.3 Write any one of the following.

- Explain Functions of Management that make the management process.
- Write a short note on Games Theory

Section – II

Q.4 Solve any three of following.

- Find The A Class, B Class And C Class Material, for following draw the Graph.

Item Number	Annual Consumption in unit	Unit Price in Paise
501	30000	10
502	280000	15
503	3000	10
504	110000	5
505	4000	5
506	220000	10
507	15000	5
508	80000	5
509	60000	15
510	8000	10

- Write a short Note on.
 - EOQ
 - Safety Stock
- Write a short note on Construction ERP and safety measures in ERP.
- A company manufactures screws to a nominal diameter $0.500 \pm 0.030\text{cm}$. Five samples were taken randomly from a manufactured lot and three measurements were taken for each sample at different lengths. The reading table is as below Calculate the control limits on \bar{x} chart and Draw \bar{x} chart.
Assume $n = 3, A2 = 1.02, D4 = 2.57, D3 = 0$

Sample no	Measurements per sample cm (x)		
	1	2	3
1	0.488	0.489	0.505
2	0.494	0.495	0.499
3	0.498	0.515	0.487
4	0.492	0.509	0.514
5	0.490	0.508	0.499

- Write a short note on Control charts (\bar{x}, R, p, c) in statistical quality control.

Q.5 Write a short note on any one of following.

- Break even analysis
- Inventory control

- 8) Dual of the Dual is _____.
a) Primal
b) Dual
c) Zero
d) Infinity
- 9) The top most row in the simplex matrix is called _____.
a) variable row
b) objective row
c) constraint row
d) none
- 10) Games without a saddle point require players to play _____.
a) Pure strategy
b) Mixed strategy
c) Market strategy
d) None
- 11) Game theory models are classified by the _____.
a) number of players
b) sum of all payoffs
c) number of strategies
d) all of the above
- 12) Lean construction includes _____.
a) Adding value added things
b) removing non value added things
c) minimizing the waste
d) all of the above
- 13) The cost of keeping items in inventory is called _____.
a) Set up cost
b) Holding cost
c) Finished cost
d) None of these
- 14) _____ stock is the lower limit of stock below which the stock should not be allowed to fall.
a) Maximum
b) Average
c) Safety
d) Standard

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever necessary & mention it clearly.
4) Use of Non-Programmable calculator is allowed.

Section – I

Q.2 Solve any three of following.

24

- a) Write a short note on
i) Centralization and Decentralization in management
ii) Explain Process of planning
- b) Obtain the initial basic feasible solution of a transportation problem whose cost and requirement table is as below, solve by North west corner Method.

Origin / Destination	D1	D2	D3	Supply
O1	2	7	4	5
O2	3	3	1	8
O3	5	4	7	7
O4	1	6	2	14
Demand	7	9	18	

- c) Solve the Assignment problem by using Assignment (Hungarian Method), Assign the jobs for different machines so as to minimize the total cost.

Job	Machine			
	A	B	C	D
1	8	26	17	11
2	13	28	4	26
3	38	19	18	15
4	19	26	24	10

- d) Solve by,
i) Hurwicz criterion Assume $A=0.8$
ii) Laplace Criterion

ALTERNATIVES	STATE OF NATURE (PRODUCT DEMAND)			
	HIGH	MODERATE	LOW	NIL
EXPAND	50,000	25,000	-25,000	-45,000
CONSTRUCT	70,000	30,000	-40,000	-80,000
SUBCONTRACT	30,000	15,000	-1,000	-10,000

- e) Solve the following.
i) Importance of Lean Construction.
ii) Why is there a need for Productivity measurement and Improvement?

Q.3 Write any one of the following.

- Explain Functions of Management that make the management process.
- Write a short note on Games Theory

Section – II

Q.4 Solve any three of following.

- a) Find The A Class, B Class And C Class Material, for following draw the Graph.

Item Number	Annual Consumption in unit	Unit Price in Paise
501	30000	10
502	280000	15
503	3000	10
504	110000	5
505	4000	5
506	220000	10
507	15000	5
508	80000	5
509	60000	15
510	8000	10

- Write a short Note on.
 - EOQ
 - Safety Stock
- Write a short note on Construction ERP and safety measures in ERP.
- A company manufactures screws to a nominal diameter $0.500 \pm 0.030\text{cm}$. Five samples were taken randomly from a manufactured lot and three measurements were taken for each sample at different lengths. The reading table is as below Calculate the control limits on \bar{x} chart and Draw \bar{x} chart.
Assume $n = 3, A2 = 1.02, D4 = 2.57, D3 = 0$

Sample no	Measurements per sample cm (x)		
	1	2	3
1	0.488	0.489	0.505
2	0.494	0.495	0.499
3	0.498	0.515	0.487
4	0.492	0.509	0.514
5	0.490	0.508	0.499

- Write a short note on Control charts (\bar{x}, R, p, c) in statistical quality control.

Q.5 Write a short note on any one of following.

- Break even analysis
- Inventory control

Seat No.	
-----------------	--

Set	S
------------	----------

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
 - 3) Assume suitable data wherever necessary & mention it clearly.
 - 4) Use of Non-Programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Games without a saddle point require players to play _____.
 - a) Pure strategy
 - b) Mixed strategy
 - c) Market strategy
 - d) None
- 2) Game theory models are classified by the _____.
 - a) number of players
 - b) sum of all payoffs
 - c) number of strategies
 - d) all of the above
- 3) Lean construction includes _____.
 - a) Adding value added things
 - b) removing non value added things
 - c) minimizing the waste
 - d) all of the above
- 4) The cost of keeping items in inventory is called _____.
 - a) Set up cost
 - b) Holding cost
 - c) Finished cost
 - d) None of these
- 5) _____ stock is the lower limit of stock below which the stock should not be allowed to fall.
 - a) Maximum
 - b) Average
 - c) Safety
 - d) Standard
- 6) Average chart & range chart are for _____.
 - a) Attributes
 - b) Variables
 - c) Both
 - d) None
- 7) Sampling is the process of determining the quality of a _____.
 - a) Large group from a small part
 - b) Small part from a large group
 - c) Small group from a small part
 - d) Small group at random
- 8) An enterprise is a group of people with _____.
 - a) common goal
 - b) separate goal for each department
 - c) multiple goals
 - d) two or more goals

- 9) _____ is a key issue in the formation of strategic plans in companies.
- a) Computerized
 - b) Quantity
 - c) Quality
 - d) Flexibility
- 10) _____ is the process of taking the necessary preventive and corrective action to ensure that organizational objectives are achieved as effectively as possible.
- a) Planning
 - b) Staffing
 - c) Controlling
 - d) Directing
- 11) MBO means _____.
- a) Management by objective
 - b) Manager Behavioural Organisation
 - c) Management By Order
 - d) None
- 12) Graphical method to solve linear programming problem is commonly used if ____.
- a) no. of decision variables is two
 - b) no. of decision variables is three
 - c) no. of decision variables is four
 - d) no. of decision variables is one
- 13) Dual of the Dual is _____.
- a) Primal
 - b) Dual
 - c) Zero
 - d) Infinity
- 14) The top most row in the simplex matrix is called _____.
- a) variable row
 - b) objective row
 - c) constraint row
 - d) none

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Principles of Management and Quantitative Techniques (BTN01604)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever necessary & mention it clearly.
4) Use of Non-Programmable calculator is allowed.

Section – I

Q.2 Solve any three of following.

24

- a) Write a short note on
i) Centralization and Decentralization in management
ii) Explain Process of planning
- b) Obtain the initial basic feasible solution of a transportation problem whose cost and requirement table is as below, solve by North west corner Method.

Origin / Destination	D1	D2	D3	Supply
O1	2	7	4	5
O2	3	3	1	8
O3	5	4	7	7
O4	1	6	2	14
Demand	7	9	18	

- c) Solve the Assignment problem by using Assignment (Hungarian Method), Assign the jobs for different machines so as to minimize the total cost.

Job	Machine			
	A	B	C	D
1	8	26	17	11
2	13	28	4	26
3	38	19	18	15
4	19	26	24	10

- d) Solve by,
i) Hurwicz criterion Assume $A=0.8$
ii) Laplace Criterion

ALTERNATIVES	STATE OF NATURE (PRODUCT DEMAND)			
	HIGH	MODERATE	LOW	NIL
EXPAND	50,000	25,000	-25,000	-45,000
CONSTRUCT	70,000	30,000	-40,000	-80,000
SUBCONTRACT	30,000	15,000	-1,000	-10,000

- e) Solve the following.
i) Importance of Lean Construction.
ii) Why is there a need for Productivity measurement and Improvement?

Q.3 Write any one of the following.

- Explain Functions of Management that make the management process.
- Write a short note on Games Theory

Section – II

Q.4 Solve any three of following.

- a) Find The A Class, B Class And C Class Material, for following draw the Graph.

Item Number	Annual Consumption in unit	Unit Price in Paise
501	30000	10
502	280000	15
503	3000	10
504	110000	5
505	4000	5
506	220000	10
507	15000	5
508	80000	5
509	60000	15
510	8000	10

- Write a short Note on.
 - EOQ
 - Safety Stock
- Write a short note on Construction ERP and safety measures in ERP.
- A company manufactures screws to a nominal diameter $0.500 \pm 0.030\text{cm}$. Five samples were taken randomly from a manufactured lot and three measurements were taken for each sample at different lengths. The reading table is as below Calculate the control limits on \bar{x} chart and Draw \bar{x} chart.
Assume $n = 3, A2 = 1.02, D4 = 2.57, D3 = 0$

Sample no	Measurements per sample cm (x)		
	1	2	3
1	0.488	0.489	0.505
2	0.494	0.495	0.499
3	0.498	0.515	0.487
4	0.492	0.509	0.514
5	0.490	0.508	0.499

- Write a short note on Control charts (\bar{x}, R, p, c) in statistical quality control.

Q.5 Write a short note on any one of following.

- Break even analysis
- Inventory control

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING
Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Bearing plates are used to fix _____.
 - a) flat footed rails to the wooden sleepers
 - b) double headed rails to the wooden sleepers
 - c) bull headed rails to the wooden sleepers
 - d) flat footed rails to the cast iron sleepers
- 2) Coning of wheels _____.
 - a) prevent lateral movement of wheels
 - b) provide smooth running of trains
 - c) avoid excessive wear of inner faces of rail
 - d) all the above
- 3) A scissors cross over consists of one diamond and _____.

a) One turn out	b) Two turn outs
c) Three turn outs	d) Four turn outs
- 4) Which of the following is not a component of the rail?

a) Ballast	b) Foot
c) Web	d) Head
- 5) The standard length of rail of BG and MG track is _____.

a) 13 & 12 m	b) 12 & 12 m
c) 12 & 13 m	d) none of above
- 6) The gradient on which an additional engine is required to negotiate the gradient, is called _____.

a) Momentum gradient	b) Pusher gradient
c) Ruling gradient	d) Steep gradient
- 7) Which of the following is the most used ballast on Indian railways?

a) Coal ash ballast	b) Brickbat ballast
c) Broken stone ballast	d) Sand ballast

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) In Section-I, Q.No.2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
 - 2) In Section-II, Q.No.6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7,8 & 9).
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Answer any two questions. 08**
- a) Explain different types of gauges on railway track.
 - b) Explain creep of rail and factors affecting on creep of rail.
 - c) Explain Advantages and disadvantages of coning of wheel.
- Q.3 Answer any two questions. 10**
- a) A train having 20 wagons weighing 18 tonnes each is to run at a speed of 50 kmph. The tractive effort of 2-8-2 locomotives with 22.5 tonnes load on each driving axle is 15 tonnes. The weight of locomotives is 120 tonnes rolling resistance of wagons and locomotives are 2.5kg/tonne and 3.5 kg/tone. The resistance which depends on speed is 2.65 tonnes. Find out steepest gradient for this condition. Coefficient of friction is 1/6.
 - b) Define permanent way with neat sketch. Explain each component of permanent way.
 - c) Explain the Different types of modes of transportation in detail.
- Q.4 Answer any two questions. 10**
- a) Explain various methods and steps for the construction and maintenance of railway track.
 - b) Explain detailed note on mono rail and metro rail.
 - c) What is the need of providing super elevation on curves of railway tracks?
 - d) Write a short note on Modern Indian Railways.
- Q.5 Answer any two questions. 10**
- a) What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch.
 - b) What are objectives of interlocking and also explain the different methods of interlocking.
 - c) Explain the cant, negative cant, cant deficiency and cant excess.

Section – II

- Q.6 Answer any two questions. 08**
- a) Calculate the actual length of the runway from the following data Airport elevation: R. L.100 Airport reference temperature: 28°C, Basic length of runway 600 m, Highest point along the length: R.L 98.2 Lowest point along the length R.L.95.2, Check the total correction for elevation plus temperature as per ICAO.
 - b) Draw cross-section of Airport showing all component parts and explain it in detail.
 - c) Explain site selection criteria for airport engineering.
- Q.7 Answer any two questions. 10**
- a) A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
 - i) Wheel base-17.70 m
 - ii) Tread of main loading gear-6.62 m
 - iii) Turning speed-40kmph
 - iv) Coefficient of friction between tyre and pavement surface-0.13 and width of taxiway-22.5m.
 - b) The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?
 - c) Write a note on Runway configuration with its types.
- Q.8 Answer any two questions. 10**
- a) Write short note on different types of break water with neat sketches.
 - b) What are the factors to be considered while selecting site for harbor?
 - c) What are fenders? Why are they used? Describe various types of fenders with sketches.
 - d) Write a note on Geometric design of taxiway.
- Q.9 Answer any two questions. 10**
- a) Explain in detail the classification of Harbor.
 - b) Write a note on Geometric design of taxiway.
 - c) Explain terms
 - i) Jetties
 - ii) Quays
 - iii) Tides
 - iv) Port

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) As per ICAO recommendation, minimum width of safety area for instrumental runway should be _____.

a) 78 m	b) 150 m
c) 300 m	d) 450 m

- 2) As per ICAO, for A, B, and C type of airports, maximum effective, transverse and longitudinal grades in percentage respectively are _____.

a) 1.0, 1.5 and 1.5	b) 1.0, 1.5 and 2.0
c) 1.5, 1.5 and 2.0	d) 2.0, 2.0 and 2.0

- 3) As per ICAO recommendation, the rate of change of longitudinal gradient per 30 m length of vertical curve for A and B type of airports is limited to a maximum of _____.

a) 0.1%	b) 0.2%
c) 0.3%	d) 0.4%

- 4) Assertion A: The ratio of arriving and departing aircrafts influences the airport capacity: Reason R: Landing operation is generally given priority over the taking off operation. Select your answer based on the coding system given below: _____.

a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

- 5) Assertion A: Depth and width required at the entrance to a harbour are more than those required in the channel. Reason R: The entrance to a harbour is usually more exposed to waves as compared to the harbour itself. Select your answer based on the coding system given below: _____.

a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) In Section-I, Q.No.2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
 - 2) In Section-II, Q.No.6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7,8 & 9).
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Answer any two questions. 08**
- a) Explain different types of gauges on railway track.
 - b) Explain creep of rail and factors affecting on creep of rail.
 - c) Explain Advantages and disadvantages of coning of wheel.
- Q.3 Answer any two questions. 10**
- a) A train having 20 wagons weighing 18 tonnes each is to run at a speed of 50 kmph. The tractive effort of 2-8-2 locomotives with 22.5 tonnes load on each driving axle is 15 tonnes. The weight of locomotives is 120 tonnes rolling resistance of wagons and locomotives are 2.5kg/tonne and 3.5 kg/tone. The resistance which depends on speed is 2.65 tonnes. Find out steepest gradient for this condition. Coefficient of friction is 1/6.
 - b) Define permanent way with neat sketch. Explain each component of permanent way.
 - c) Explain the Different types of modes of transportation in detail.
- Q.4 Answer any two questions. 10**
- a) Explain various methods and steps for the construction and maintenance of railway track.
 - b) Explain detailed note on mono rail and metro rail.
 - c) What is the need of providing super elevation on curves of railway tracks?
 - d) Write a short note on Modern Indian Railways.
- Q.5 Answer any two questions. 10**
- a) What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch.
 - b) What are objectives of interlocking and also explain the different methods of interlocking.
 - c) Explain the cant, negative cant, cant deficiency and cant excess.

Section – II

- Q.6 Answer any two questions. 08**
- Calculate the actual length of the runway from the following data Airport elevation: R. L.100 Airport reference temperature: 28°C, Basic length of runway 600 m, Highest point along the length: R.L 98.2 Lowest point along the length R.L.95.2, Check the total correction for elevation plus temperature as per ICAO.
 - Draw cross-section of Airport showing all component parts and explain it in detail.
 - Explain site selection criteria for airport engineering.
- Q.7 Answer any two questions. 10**
- A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
 - Wheel base-17.70 m
 - Tread of main loading gear-6.62 m
 - Turning speed-40kmph
 - Coefficient of friction between tyre and pavement surface-0.13 and width of taxiway-22.5m.
 - The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?
 - Write a note on Runway configuration with its types.
- Q.8 Answer any two questions. 10**
- Write short note on different types of break water with neat sketches.
 - What are the factors to be considered while selecting site for harbor?
 - What are fenders? Why are they used? Describe various types of fenders with sketches.
 - Write a note on Geometric design of taxiway.
- Q.9 Answer any two questions. 10**
- Explain in detail the classification of Harbor.
 - Write a note on Geometric design of taxiway.
 - Explain terms
 - Jetties
 - Quays
 - Tides
 - Port

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING

Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) Assertion A: The ratio of arriving and departing aircrafts influences the airport capacity: Reason R: Landing operation is generally given priority over the taking off operation. Select your answer based on the coding system given below: _____.
 - a) Both A and R are true and R is the correct explanation of A
 - b) Both A and R are true and R is not the correct explanation of A
 - c) A is true but R is false
 - d) A is false but R is true

- 2) Assertion A: Depth and width required at the entrance to a harbour are more than those required in the channel. Reason R: The entrance to a harbour is usually more exposed to waves as compared to the harbour itself. Select your answer based on the coding system given below: _____.
 - a) Both A and R are true and R is the correct explanation of A
 - b) Both A and R are true and R is not the correct explanation of A
 - c) A is true but R is false
 - d) A is false but R is true

- 3) When a ship floats at its designed water line, the vertical distance from water line to the bottom of the ship is known as _____.
 - a) beam
 - b) depth
 - c) freeboard
 - d) draft

- 4) The maximum harbour depth below lowest low water is generally equal to _____.
 - i) loaded draft + 1.2 m when bottom is rock
 - ii) loaded draft + 1.8 m when bottom is soft
 - iii) loaded draft + 1.2 m when bottom is soft
 - iv) loaded draft + 1.8 m
 when bottom is rock of these statements
 - a) (i) and (ii) are correct
 - b) (i) and (iii) are correct
 - c) (ii) and (iv) are correct
 - d) (iii) and (iv) are correct

- 5) Bearing plates are used to fix _____.
- flat footed rails to the wooden sleepers
 - double headed rails to the wooden sleepers
 - bull headed rails to the wooden sleepers
 - flat footed rails to the cast iron sleepers
- 6) Coning of wheels _____.
- prevent lateral movement of wheels
 - provide smooth running of trains
 - avoid excessive wear of inner faces of rail
 - all the above
- 7) A scissors cross over consists of one diamond and _____.
- One turn out
 - Two turn outs
 - Three turn outs
 - Four turn outs
- 8) Which of the following is not a component of the rail?
- Ballast
 - Foot
 - Web
 - Head
- 9) The standard length of rail of BG and MG track is _____.
- 13 & 12 m
 - 12 & 12 m
 - 12 & 13 m
 - none of above
- 10) The gradient on which an additional engine is required to negotiate the gradient, is called _____.
- Momentum gradient
 - Pusher gradient
 - Ruling gradient
 - Steep gradient
- 11) Which of the following is the most used ballast on Indian railways?
- Coal ash ballast
 - Brickbat ballast
 - Broken stone ballast
 - Sand ballast
- 12) As per ICAO recommendation, minimum width of safety area for instrumental runway should be _____.
- 78 m
 - 150 m
 - 300 m
 - 450 m
- 13) As per ICAO, for A, B, and C type of airports, maximum effective, transverse and longitudinal grades in percentage respectively are _____.
- 1.0, 1.5 and 1.5
 - 1.0, 1.5 and 2.0
 - 1.5, 1.5 and 2.0
 - 2.0, 2.0 and 2.0
- 14) As per ICAO recommendation, the rate of change of longitudinal gradient per 30 m length of vertical curve for A and B type of airports is limited to a maximum of _____.
- 0.1%
 - 0.2%
 - 0.3%
 - 0.4%

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING
Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) In Section-I, Q.No.2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
 - 2) In Section-II, Q.No.6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7,8 & 9).
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Answer any two questions. 08**
- a) Explain different types of gauges on railway track.
 - b) Explain creep of rail and factors affecting on creep of rail.
 - c) Explain Advantages and disadvantages of coning of wheel.
- Q.3 Answer any two questions. 10**
- a) A train having 20 wagons weighing 18 tonnes each is to run at a speed of 50 kmph. The tractive effort of 2-8-2 locomotives with 22.5 tonnes load on each driving axle is 15 tonnes. The weight of locomotives is 120 tonnes rolling resistance of wagons and locomotives are 2.5kg/tonne and 3.5 kg/tone. The resistance which depends on speed is 2.65 tonnes. Find out steepest gradient for this condition. Coefficient of friction is 1/6.
 - b) Define permanent way with neat sketch. Explain each component of permanent way.
 - c) Explain the Different types of modes of transportation in detail.
- Q.4 Answer any two questions. 10**
- a) Explain various methods and steps for the construction and maintenance of railway track.
 - b) Explain detailed note on mono rail and metro rail.
 - c) What is the need of providing super elevation on curves of railway tracks?
 - d) Write a short note on Modern Indian Railways.
- Q.5 Answer any two questions. 10**
- a) What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch.
 - b) What are objectives of interlocking and also explain the different methods of interlocking.
 - c) Explain the cant, negative cant, cant deficiency and cant excess.

Section – II

- Q.6 Answer any two questions. 08**
- a) Calculate the actual length of the runway from the following data Airport elevation: R. L.100 Airport reference temperature: 28°C, Basic length of runway 600 m, Highest point along the length: R.L 98.2 Lowest point along the length R.L.95.2, Check the total correction for elevation plus temperature as per ICAO.
 - b) Draw cross-section of Airport showing all component parts and explain it in detail.
 - c) Explain site selection criteria for airport engineering.
- Q.7 Answer any two questions. 10**
- a) A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
 - i) Wheel base-17.70 m
 - ii) Tread of main loading gear-6.62 m
 - iii) Turning speed-40kmph
 - iv) Coefficient of friction between tyre and pavement surface-0.13 and width of taxiway-22.5m.
 - b) The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?
 - c) Write a note on Runway configuration with its types.
- Q.8 Answer any two questions. 10**
- a) Write short note on different types of break water with neat sketches.
 - b) What are the factors to be considered while selecting site for harbor?
 - c) What are fenders? Why are they used? Describe various types of fenders with sketches.
 - d) Write a note on Geometric design of taxiway.
- Q.9 Answer any two questions. 10**
- a) Explain in detail the classification of Harbor.
 - b) Write a note on Geometric design of taxiway.
 - c) Explain terms
 - i) Jetties
 - ii) Quays
 - iii) Tides
 - iv) Port

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume any missing data suitably and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) The gradient on which an additional engine is required to negotiate the gradient, is called _____.

a) Momentum gradient	b) Pusher gradient
c) Ruling gradient	d) Steep gradient
- 2) Which of the following is the most used ballast on Indian railways?

a) Coal ash ballast	b) Brickbat ballast
c) Broken stone ballast	d) Sand ballast
- 3) As per ICAO recommendation, minimum width of safety area for instrumental runway should be _____.

a) 78 m	b) 150 m
c) 300 m	d) 450 m
- 4) As per ICAO, for A, B, and C type of airports, maximum effective, transverse and longitudinal grades in percentage respectively are _____.

a) 1.0, 1.5 and 1.5	b) 1.0, 1.5 and 2.0
c) 1.5, 1.5 and 2.0	d) 2.0, 2.0 and 2.0
- 5) As per ICAO recommendation, the rate of change of longitudinal gradient per 30 m length of vertical curve for A and B type of airports is limited to a maximum of _____.

a) 0.1%	b) 0.2%
c) 0.3%	d) 0.4%
- 6) Assertion A: The ratio of arriving and departing aircrafts influences the airport capacity: Reason R: Landing operation is generally given priority over the taking off operation. Select your answer based on the coding system given below: _____.

a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

- 7) Assertion A: Depth and width required at the entrance to a harbour are more than those required in the channel. Reason R: The entrance to a harbour is usually more exposed to waves as compared to the harbour itself. Select your answer based on the coding system given below: _____.
- Both A and R are true and R is the correct explanation of A
 - Both A and R are true and R is not the correct explanation of A
 - A is true but R is false
 - A is false but R is true
- 8) When a ship floats at its designed water line, the vertical distance from water line to the bottom of the ship is known as _____.
- beam
 - depth
 - freeboard
 - draft
- 9) The maximum harbour depth below lowest low water is generally equal to _____.
 i) loaded draft + 1.2 m when bottom is rock
 ii) loaded draft + 1.8 m when bottom is soft
 iii) loaded draft + 1.2 m when bottom is soft
 iv) loaded draft + 1.8 m
 when bottom is rock of these statements
- (i) and (ii) are correct
 - (i) and (iii) are correct
 - (ii) and (iv) are correct
 - (iii) and (iv) are correct
- 10) Bearing plates are used to fix _____.
- flat footed rails to the wooden sleepers
 - double headed rails to the wooden sleepers
 - bull headed rails to the wooden sleepers
 - flat footed rails to the cast iron sleepers
- 11) Coning of wheels _____.
- prevent lateral movement of wheels
 - provide smooth running of trains
 - avoid excessive wear of inner faces of rail
 - all the above
- 12) A scissors cross over consists of one diamond and _____.
- One turn out
 - Two turn outs
 - Three turn outs
 - Four turn outs
- 13) Which of the following is not a component of the rail?
- Ballast
 - Foot
 - Web
 - Head
- 14) The standard length of rail of BG and MG track is _____.
- 13 & 12 m
 - 12 & 12 m
 - 12 & 13 m
 - none of above

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Railway, Airport & Harbour Engineering (BTN01605)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) In Section-I, Q.No.2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
 - 2) In Section-II, Q.No.6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7,8 & 9).
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Answer any two questions. 08**
- a) Explain different types of gauges on railway track.
 - b) Explain creep of rail and factors affecting on creep of rail.
 - c) Explain Advantages and disadvantages of coning of wheel.
- Q.3 Answer any two questions. 10**
- a) A train having 20 wagons weighing 18 tonnes each is to run at a speed of 50 kmph. The tractive effort of 2-8-2 locomotives with 22.5 tonnes load on each driving axle is 15 tonnes. The weight of locomotives is 120 tonnes rolling resistance of wagons and locomotives are 2.5kg/tonne and 3.5 kg/tone. The resistance which depends on speed is 2.65 tonnes. Find out steepest gradient for this condition. Coefficient of friction is 1/6.
 - b) Define permanent way with neat sketch. Explain each component of permanent way.
 - c) Explain the Different types of modes of transportation in detail.
- Q.4 Answer any two questions. 10**
- a) Explain various methods and steps for the construction and maintenance of railway track.
 - b) Explain detailed note on mono rail and metro rail.
 - c) What is the need of providing super elevation on curves of railway tracks?
 - d) Write a short note on Modern Indian Railways.
- Q.5 Answer any two questions. 10**
- a) What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch.
 - b) What are objectives of interlocking and also explain the different methods of interlocking.
 - c) Explain the cant, negative cant, cant deficiency and cant excess.

Section – II

- Q.6 Answer any two questions. 08**
- Calculate the actual length of the runway from the following data Airport elevation: R. L.100 Airport reference temperature: 28°C, Basic length of runway 600 m, Highest point along the length: R.L 98.2 Lowest point along the length R.L.95.2, Check the total correction for elevation plus temperature as per ICAO.
 - Draw cross-section of Airport showing all component parts and explain it in detail.
 - Explain site selection criteria for airport engineering.
- Q.7 Answer any two questions. 10**
- A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
 - Wheel base-17.70 m
 - Tread of main loading gear-6.62 m
 - Turning speed-40kmph
 - Coefficient of friction between tyre and pavement surface-0.13 and width of taxiway-22.5m.
 - The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?
 - Write a note on Runway configuration with its types.
- Q.8 Answer any two questions. 10**
- Write short note on different types of break water with neat sketches.
 - What are the factors to be considered while selecting site for harbor?
 - What are fenders? Why are they used? Describe various types of fenders with sketches.
 - Write a note on Geometric design of taxiway.
- Q.9 Answer any two questions. 10**
- Explain in detail the classification of Harbor.
 - Write a note on Geometric design of taxiway.
 - Explain terms
 - Jetties
 - Quays
 - Tides
 - Port

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 Each question carries one mark.
2) Answer MCQ/Objective type question on page No. 3only. Don't forgot to mention, Q.P. set (P/Q/R/S) on Top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

- 1) The cycle of disaster consists of the following components _____.
 - a) Mitigation, Preparedness, Response, Recovery
 - b) Preparedness, vulnerability assessment, risk assessment, recovery
 - c) Mitigation, Risk assessment, Response and Recovery
 - d) None of the above
- 2) Effective hazard management largely rely on _____.
 - a) Emergency responses
 - b) Govt. agencies
 - c) Volcanoes
 - d) Pre-disaster planning
- 3) The Disaster Management Act was made in _____.
 - a) 2003
 - b) 2005
 - c) 2006
 - d) 2009
- 4) The level of harm by a hazard is governed by _____.
 - a) Frequency of the hazard
 - b) Intensity at the impact point
 - c) Magnitude of the hazard
 - d) All of the above
- 5) How many types of Hazards are there _____.
 - a) 1
 - b) 2
 - c) 4
 - d) 5
- 6) Volcanic eruption are closely associated with _____.
 - a) Mountain building and fracturing
 - b) Deforestation
 - c) Landslides
 - d) Heat budget
- 7) Structural and Non-structural measures are elements of high category of Risk Reduction measures _____.
 - a) Socio-economic measures
 - b) Physical measures
 - c) Environmental measures
 - d) Post disaster measures
- 8) How many steps are there in the disaster recovery process?
 - a) 7
 - b) 4
 - c) 8
 - d) 5

- 9) Which one of the following is not a Natural Disaster?
a) Volcano eruption b) Flood
c) Blow-out d) Tsunami
- 10) Which one of the following is the nodal ministry at the center for coordinating disaster management activities for all-natural disasters except drought?
a) ministry of agricultural b) ministry of home affairs
c) ministry of civil aviation d) ministry of health and family welfare
- 11) Which of the following is NOT a phase of emergency management?
a) Resource b) Mitigation
c) Response d) Recovery
- 12) Find out the main objectives of the search and rescue team from the following.
I) rescue the survivors trapped under debris
II) provide first-aid service to the trapped survivors
III) hand over, recover and dispose of the deceased bodies
IV) listen to all sources of information
a) I, II and IV b) I, III and IV
c) II, III and IV d) I, II and III
- 13) Who among the following is the first to respond when a disaster strikes?
a) N.G.O b) local administration
c) affected community members d) local community members
- 14) Who among the following is the most affected during the famine?
a) Bank workers b) Doctors
c) Traders d) Workers

Seat No.	
-----------------	--

Set P

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

- Q.2** a) Define disaster preparedness and explain disaster preparedness measures. **07**
b) Write a short note on disaster preparedness with special needs. **07**
- Q.3** a) Explain concept and significance of disaster preparedness plan. **07**
b) Explain basic essentials of disaster preparedness plan. **07**
- Q.4** a) Explain the role of government in disaster preparedness. **07**
b) Explain the role of education and communication in disaster preparedness. **07**

Section – II

- Q.5** a) Explain food and essential commodity in disaster response. **07**
b) Explain financial, medical and equipment resources in disaster response. **07**
- Q.6** a) Explain communication and participation in disaster response. **07**
b) Explain search, rescue and activation of emergency preparedness plan. **07**
- Q.7** a) Explain reporting and information in disasters response. **07**
b) Explain media and importance of role of media in disasters. **07**

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 Each question carries one mark.
2) Answer MCQ/Objective type question on page No. 3only. Don't forgot to mention, Q.P. set (P/Q/R/S) on Top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) How many steps are there in the disaster recovery process?

a) 7	b) 4
c) 8	d) 5

- 2) Which one of the following is not a Natural Disaster?

a) Volcano eruption	b) Flood
c) Blow-out	d) Tsunami

- 3) Which one of the following is the nodal ministry at the center for coordinating disaster management activities for all-natural disasters except drought?

a) ministry of agricultural	b) ministry of home affairs
c) ministry of civil aviation	d) ministry of health and family welfare

- 4) Which of the following is NOT a phase of emergency management?

a) Resource	b) Mitigation
c) Response	d) Recovery

- 5) Find out the main objectives of the search and rescue team from the following.

I) rescue the survivors trapped under debris	
II) provide first-aid service to the trapped survivors	
III) hand over, recover and dispose of the deceased bodies	
IV) listen to all sources of information	
a) I, II and IV	b) I, III and IV
c) II, III and IV	d) I, II and III

- 6) Who among the following is the first to respond when a disaster strikes?

a) N.G.O	b) local administration
c) affected community members	d) local community members

- 7) Who among the following is the most affected during the famine?

a) Bank workers	b) Doctors
c) Traders	d) Workers

- 8) The cycle of disaster consists of the following components _____.
- a) Mitigation, Preparedness, Response, Recovery
 - b) Preparedness, vulnerability assessment, risk assessment, recovery
 - c) Mitigation, Risk assessment, Response and Recovery
 - d) None of the above
- 9) Effective hazard management largely rely on _____.
- a) Emergency responses
 - b) Govt. agencies
 - c) Volcanoes
 - d) Pre-disaster planning
- 10) The Disaster Management Act was made in _____.
- a) 2003
 - b) 2005
 - c) 2006
 - d) 2009
- 11) The level of harm by a hazard is governed by _____.
- a) Frequency of the hazard
 - b) Intensity at the impact point
 - c) Magnitude of the hazard
 - d) All of the above
- 12) How many types of Hazards are there _____.
- a) 1
 - b) 2
 - c) 4
 - d) 5
- 13) Volcanic eruption are closely associated with _____.
- a) Mountain building and fracturing
 - b) Deforestation
 - c) Landslides
 - d) Heat budget
- 14) Structural and Non-structural measures are elements of high category of Risk Reduction measures _____.
- a) Socio-economic measures
 - b) Physical measures
 - c) Environmental measures
 - d) Post disaster measures

Seat No.	
-----------------	--

Set Q

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

- Q.2** a) Define disaster preparedness and explain disaster preparedness measures. **07**
b) Write a short note on disaster preparedness with special needs. **07**
- Q.3** a) Explain concept and significance of disaster preparedness plan. **07**
b) Explain basic essentials of disaster preparedness plan. **07**
- Q.4** a) Explain the role of government in disaster preparedness. **07**
b) Explain the role of education and communication in disaster preparedness. **07**

Section – II

- Q.5** a) Explain food and essential commodity in disaster response. **07**
b) Explain financial, medical and equipment resources in disaster response. **07**
- Q.6** a) Explain communication and participation in disaster response. **07**
b) Explain search, rescue and activation of emergency preparedness plan. **07**
- Q.7** a) Explain reporting and information in disasters response. **07**
b) Explain media and importance of role of media in disasters. **07**

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 Each question carries one mark.
2) Answer MCQ/Objective type question on page No. 3only. Don't forgot to mention, Q.P. set (P/Q/R/S) on Top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following is NOT a phase of emergency management?

a) Resource	b) Mitigation
c) Response	d) Recovery

- 2) Find out the main objectives of the search and rescue team from the following.

I) rescue the survivors trapped under debris	
II) provide first-aid service to the trapped survivors	
III) hand over, recover and dispose of the deceased bodies	
IV) listen to all sources of information	
a) I, II and IV	b) I, III and IV
c) II, III and IV	d) I, II and III

- 3) Who among the following is the first to respond when a disaster strikes?

a) N.G.O	b) local administration
c) affected community members	d) local community members

- 4) Who among the following is the most affected during the famine?

a) Bank workers	b) Doctors
c) Traders	d) Workers

- 5) The cycle of disaster consists of the following components _____.

a) Mitigation, Preparedness, Response, Recovery
b) Preparedness, vulnerability assessment, risk assessment, recovery
c) Mitigation, Risk assessment, Response and Recovery
d) None of the above

- 6) Effective hazard management largely rely on _____.

a) Emergency responses	b) Govt. agencies
c) Volcanoes	d) Pre-disaster planning

- 7) The Disaster Management Act was made in _____.

a) 2003	b) 2005
c) 2006	d) 2009

- 8) The level of harm by a hazard is governed by _____.
a) Frequency of the hazard b) Intensity at the impact point
c) Magnitude of the hazard d) All of the above
- 9) How many types of Hazards are there _____.
a) 1 b) 2
c) 4 d) 5
- 10) Volcanic eruption are closely associated with _____.
a) Mountain building and fracturing
b) Deforestation
c) Landslides
d) Heat budget
- 11) Structural and Non-structural measures are elements of high category of Risk Reduction measures _____.
a) Socio-economic measures b) Physical measures
c) Environmental measures d) Post disaster measures
- 12) How many steps are there in the disaster recovery process?
a) 7 b) 4
c) 8 d) 5
- 13) Which one of the following is not a Natural Disaster?
a) Volcano eruption b) Flood
c) Blow-out d) Tsunami
- 14) Which one of the following is the nodal ministry at the center for coordinating disaster management activities for all-natural disasters except drought?
a) ministry of agricultural b) ministry of home affairs
c) ministry of civil aviation d) ministry of health and family welfare

Seat No.	
-----------------	--

Set R

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

- Q.2** a) Define disaster preparedness and explain disaster preparedness measures. **07**
b) Write a short note on disaster preparedness with special needs. **07**
- Q.3** a) Explain concept and significance of disaster preparedness plan. **07**
b) Explain basic essentials of disaster preparedness plan. **07**
- Q.4** a) Explain the role of government in disaster preparedness. **07**
b) Explain the role of education and communication in disaster preparedness. **07**

Section – II

- Q.5** a) Explain food and essential commodity in disaster response. **07**
b) Explain financial, medical and equipment resources in disaster response. **07**
- Q.6** a) Explain communication and participation in disaster response. **07**
b) Explain search, rescue and activation of emergency preparedness plan. **07**
- Q.7** a) Explain reporting and information in disasters response. **07**
b) Explain media and importance of role of media in disasters. **07**

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 Each question carries one mark.
 - 2) Answer MCQ/Objective type question on page No. 3only. Don't forgot to mention, Q.P. set (P/Q/R/S) on Top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Volcanic eruption are closely associated with _____.
 - a) Mountain building and fracturing
 - b) Deforestation
 - c) Landslides
 - d) Heat budget
- 2) Structural and Non-structural measures are elements of high category of Risk Reduction measures _____.
 - a) Socio-economic measures
 - b) Physical measures
 - c) Environmental measures
 - d) Post disaster measures
- 3) How many steps are there in the disaster recovery process?
 - a) 7
 - b) 4
 - c) 8
 - d) 5
- 4) Which one of the following is not a Natural Disaster?
 - a) Volcano eruption
 - b) Flood
 - c) Blow-out
 - d) Tsunami
- 5) Which one of the following is the nodal ministry at the center for coordinating disaster management activities for all-natural disasters except drought?
 - a) ministry of agricultural
 - b) ministry of home affairs
 - c) ministry of civil aviation
 - d) ministry of health and family welfare
- 6) Which of the following is NOT a phase of emergency management?
 - a) Resource
 - b) Mitigation
 - c) Response
 - d) Recovery
- 7) Find out the main objectives of the search and rescue team from the following.
 - I) rescue the survivors trapped under debris
 - II) provide first-aid service to the trapped survivors
 - III) hand over, recover and dispose of the deceased bodies
 - IV) listen to all sources of information
 - a) I, II and IV
 - b) I, III and IV
 - c) II, III and IV
 - d) I, II and III

Seat No.	
-----------------	--

Set S

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Disaster Preparedness and Response (BTN01620)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

- Q.2** a) Define disaster preparedness and explain disaster preparedness measures. **07**
b) Write a short note on disaster preparedness with special needs. **07**
- Q.3** a) Explain concept and significance of disaster preparedness plan. **07**
b) Explain basic essentials of disaster preparedness plan. **07**
- Q.4** a) Explain the role of government in disaster preparedness. **07**
b) Explain the role of education and communication in disaster preparedness. **07**

Section – II

- Q.5** a) Explain food and essential commodity in disaster response. **07**
b) Explain financial, medical and equipment resources in disaster response. **07**
- Q.6** a) Explain communication and participation in disaster response. **07**
b) Explain search, rescue and activation of emergency preparedness plan. **07**
- Q.7** a) Explain reporting and information in disasters response. **07**
b) Explain media and importance of role of media in disasters. **07**

- 10)** What is essential in an EIA?
- a) that it allows decision makers to assess a project's impacts in all its phase
 - b) that it allows the public and other stakeholders to present their views and inputs on the planned development
 - c) that it contributes to and improve the project design, so that environmental as well as socioeconomic measures are core parts of it
 - d) All of above
- 11)** EIA is Study of probable change in socio economic and _____.
- a) biophysical
 - b) geological
 - c) hydrological
 - d) potential
- 12)** EIA is _____ and _____ environmental impactsassessment.
- a) social and benefit
 - b) social and benefit
 - c) beneficial and adverse
 - d) None of above
- 13)** The site amenities are covered under which of the items of DPR.
- a) Background
 - b) Abstract
 - c) Miscellaneous
 - d) Estimate
- 14)** Los Angeles testing machine is used to conduct _____.
- a) Abrasion test
 - b) Impact test
 - c) Attrition test
 - d) Crushing strength test

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

- Q.2 Answer any three. 24**
- a) How the GIS is used for Highway Projects from planning stage to construction stage?
 - b) Write down the salient features of ongoing road projects in India
 - c) Design the rate of superelevation for a horizontal highway curve of radius 500 metre and design speed 100 kmph.
 - d) How the traffic surveys & Traffic forecasting are required for assessing roadway requirements?
 - e) What is importance of 'Highway Drainage'? Elaborate its different types.
- Q.3 Write a short note on any one. 04**
- a) Street Lighting
 - b) Origin- destination characteristics and studies

Section – II

- Q.4 Answer any three. 24**
- a) Write a Tender evaluation process in detail regarding Highway Projects.
 - b) What is EIA? Explain stepwise procedure for its assessment?
 - c) Explain stepwise procedure for construction of rigid pavement road.
 - d) Elaborate 'implementation of environment management plan'.
 - e) Make note on 'Different layers of flexible pavement' with figure.
- Q.5 Write a short note on any one. 04**
- a) BOQ
 - b) Preparation of tender documents

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct alternative (One mark each)

14

- 1) The extra width of pavement is provided on _____.
a) Horizontal Curve b) Summit Curve
c) Vertical Curve d) Valley Curve
- 2) The main purpose of providing camber is _____.
a) To drain off rain water b) Skid resistance
c) To maintain Equilibrium d) Geometric design purpose
- 3) What is essential in an EIA?
a) that it allows decision makers to assess a project's impacts in all its phase
b) that it allows the public and other stakeholders to present their views and inputs on the planned development
c) that it contributes to and improve the project design, so that environmental as well as socioeconomic measures are core parts of it
d) All of above
- 4) EIA is Study of probable change in socio economic and _____.
a) biophysical b) geological
c) hydrological d) potential
- 5) EIA is _____ and _____ environmental impactsassessment.
a) social and benefit b) social and benefit
c) beneficial and adverse d) None of above
- 6) The site amenities are covered under which of the items of DPR.
a) Background b) Abstract
c) Miscellaneous d) Estimate
- 7) Los Angeles testing machine is used to conduct _____.
a) Abrasion test b) Impact test
c) Attrition test d) Crushing strength test
- 8) The index map shows _____.
a) topography b) area of the site
c) soil d) plan

- 9) Detailed size drawings are prepared in which sheet?
 - a) A1
 - b) A2
 - c) A3
 - d) A4

- 10) The report that includes all the works including soil, bridges, topography, material studies and drainage studies is called as _____.
 - a) Feasibility report
 - b) Detailed project report
 - c) Survey report
 - d) Primary report

- 11) Highway should be planned for _____.
 - a) Present requirements
 - b) Traffic developments
 - c) Traffic studies
 - d) Present and future developments

- 12) Which of the following will come under the manual method of road survey?
 - a) GIS
 - b) Windshield survey
 - c) Walking Survey
 - d) Floating Car Survey

- 13) Which of the following is included in the road project survey report?
 - a) Location
 - b) Terrain
 - c) Windspeed
 - d) Slope

- 14) The most raised portion of the pavement is called _____.
 - a) Angle of Banking
 - b) Widening
 - c) Crown
 - d) Shoulder

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

- Q.2 Answer any three. 24**
- a) How the GIS is used for Highway Projects from planning stage to construction stage?
 - b) Write down the salient features of ongoing road projects in India
 - c) Design the rate of superelevation for a horizontal highway curve of radius 500 metre and design speed 100 kmph.
 - d) How the traffic surveys & Traffic forecasting are required for assessing roadway requirements?
 - e) What is importance of 'Highway Drainage'? Elaborate its different types.
- Q.3 Write a short note on any one. 04**
- a) Street Lighting
 - b) Origin- destination characteristics and studies

Section – II

- Q.4 Answer any three. 24**
- a) Write a Tender evaluation process in detail regarding Highway Projects.
 - b) What is EIA? Explain stepwise procedure for its assessment?
 - c) Explain stepwise procedure for construction of rigid pavement road.
 - d) Elaborate 'implementation of environment management plan'.
 - e) Make note on 'Different layers of flexible pavement' with figure.
- Q.5 Write a short note on any one. 04**
- a) BOQ
 - b) Preparation of tender documents

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct alternative (One mark each) 14

- 1) EIA is Study of probable change in socio economic and _____.
 - a) biophysical
 - b) geological
 - c) hydrological
 - d) potential

- 2) EIA is _____ and _____ environmental impacts assessment.
 - a) social and benefit
 - b) social and benefit
 - c) beneficial and adverse
 - d) None of above

- 3) The site amenities are covered under which of the items of DPR.
 - a) Background
 - b) Abstract
 - c) Miscellaneous
 - d) Estimate

- 4) Los Angeles testing machine is used to conduct _____.
 - a) Abrasion test
 - b) Impact test
 - c) Attrition test
 - d) Crushing strength test

- 5) The index map shows _____.
 - a) topography
 - b) area of the site
 - c) soil
 - d) plan

- 6) Detailed size drawings are prepared in which sheet?
 - a) A1
 - b) A2
 - c) A3
 - d) A4

- 7) The report that includes all the works including soil, bridges, topography, material studies and drainage studies is called as _____.
 - a) Feasibility report
 - b) Detailed project report
 - c) Survey report
 - d) Primary report

- 8) Highway should be planned for _____.
 - a) Present requirements
 - b) Traffic developments
 - c) Traffic studies
 - d) Present and future developments

- 9) Which of the following will come under the manual method of road survey?
 - a) GIS
 - b) Windshield survey
 - c) Walking Survey
 - d) Floating Car Survey

- 10)** Which of the following is included in the road project survey report?
- a) Location
 - b) Terrain
 - c) Windspeed
 - d) Slope
- 11)** The most raised portion of the pavement is called _____.
- a) Angle of Banking
 - b) Widening
 - c) Crown
 - d) Shoulder
- 12)** The extra width of pavement is provided on _____.
- a) Horizontal Curve
 - b) Summit Curve
 - c) Vertical Curve
 - d) Valley Curve
- 13)** The main purpose of providing camber is _____.
- a) To drain off rain water
 - b) Skid resistance
 - c) To maintain Equilibrium
 - d) Geometric design purpose
- 14)** What is essential in an EIA?
- a) that it allows decision makers to assess a project's impacts in all its phase
 - b) that it allows the public and other stakeholders to present their views and inputs on the planned development
 - c) that it contributes to and improve the project design, so that environmental as well as socioeconomic measures are core parts of it
 - d) All of above

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

- Q.2 Answer any three. 24**
- a) How the GIS is used for Highway Projects from planning stage to construction stage?
 - b) Write down the salient features of ongoing road projects in India
 - c) Design the rate of superelevation for a horizontal highway curve of radius 500 metre and design speed 100 kmph.
 - d) How the traffic surveys & Traffic forecasting are required for assessing roadway requirements?
 - e) What is importance of 'Highway Drainage'? Elaborate its different types.
- Q.3 Write a short note on any one. 04**
- a) Street Lighting
 - b) Origin- destination characteristics and studies

Section – II

- Q.4 Answer any three. 24**
- a) Write a Tender evaluation process in detail regarding Highway Projects.
 - b) What is EIA? Explain stepwise procedure for its assessment?
 - c) Explain stepwise procedure for construction of rigid pavement road.
 - d) Elaborate 'implementation of environment management plan'.
 - e) Make note on 'Different layers of flexible pavement' with figure.
- Q.5 Write a short note on any one. 04**
- a) BOQ
 - b) Preparation of tender documents

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct alternative (One mark each)

14

- 1) Which of the following is included in the road project survey report?
 - a) Location
 - b) Terrain
 - c) Windspeed
 - d) Slope
- 2) The most raised portion of the pavement is called _____.
 - a) Angle of Banking
 - b) Widening
 - c) Crown
 - d) Shoulder
- 3) The extra width of pavement is provided on _____.
 - a) Horizontal Curve
 - b) Summit Curve
 - c) Vertical Curve
 - d) Valley Curve
- 4) The main purpose of providing camber is _____.
 - a) To drain off rain water
 - b) Skid resistance
 - c) To maintain Equilibrium
 - d) Geometric design purpose
- 5) What is essential in an EIA?
 - a) that it allows decision makers to assess a project's impacts in all its phase
 - b) that it allows the public and other stakeholders to present their views and inputs on the planned development
 - c) that it contributes to and improve the project design, so that environmental as well as socioeconomic measures are core parts of it
 - d) All of above
- 6) EIA is Study of probable change in socio economic and _____.
 - a) biophysical
 - b) geological
 - c) hydrological
 - d) potential
- 7) EIA is _____ and _____ environmental impactsassessment.
 - a) social and benefit
 - b) social and benefit
 - c) beneficial and adverse
 - d) None of above
- 8) The site amenities are covered under which of the items of DPR.
 - a) Background
 - b) Abstract
 - c) Miscellaneous
 - d) Estimate

Seat No.	
-----------------	--

Set	S
------------	----------

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April – 2024
CIVIL ENGINEERING**

Roads and Highway Project Development (BTN01621)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

Q.2 Answer any three. 24

- How the GIS is used for Highway Projects from planning stage to construction stage?
- Write down the salient features of ongoing road projects in India
- Design the rate of superelevation for a horizontal highway curve of radius 500 metre and design speed 100 kmph.
- How the traffic surveys & Traffic forecasting are required for assessing roadway requirements?
- What is importance of 'Highway Drainage'? Elaborate its different types.

Q.3 Write a short note on any one. 04

- Street Lighting
- Origin- destination characteristics and studies

Section – II

Q.4 Answer any three. 24

- Write a Tender evaluation process in detail regarding Highway Projects.
- What is EIA? Explain stepwise procedure for its assessment?
- Explain stepwise procedure for construction of rigid pavement road.
- Elaborate 'implementation of environment management plan'.
- Make note on 'Different layers of flexible pavement' with figure.

Q.5 Write a short note on any one. 04

- BOQ
- Preparation of tender documents

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) Which of the following is not the pillar of sustainability?
 - a) Economy
 - b) Environment
 - c) Ecology
 - d) Society
- 2) Which of the following elements should be used optimum to make a green building?
 - a) Agni
 - b) Jal
 - c) Prithvi
 - d) All of the above
- 3) Principles of sustainability doesn't include _____.
 - a) Balance & equity
 - b) System thinking
 - c) Spiritual values
 - d) None of these
- 4) Which of the following is not an economic benefit for a green building?
 - a) 20 - 30 % energy used
 - b) 20 - 30 % less water used
 - c) Enhance asset value
 - d) None of these
- 5) Sustainability can't be achieved if _____.
 - a) Different societies work with unique mindset
 - b) Different societies work with different mindsets
 - c) Similar societies work with singular mindset
 - d) Similar societies work with different mindsets
- 6) Which of the following is not the purpose of a green building?
 - a) To reduce use of water
 - b) To minimize damage of the environment
 - c) Re-use of waste materials
 - d) None of the above
- 7) How can sustainable engineering contribute to a circular economy?
 - a) By promoting linear production and consumption practices
 - b) By designing products for reuse, recycling and resource recovery
 - c) By disregarding environmental considerations in engineering decisions
 - d) By prioritizing short term economic gains

- 8) Which of the following is not considered in an LCA?
a) Energy consumption b) Water usage
c) Greenhouse gas emissions d) Aesthetics
- 9) Which of the following green rating systems are currently working in India?
a) LEED b) GRIHA
c) Both a) and b) d) None of the above
- 10) GRIHA has been prepared by _____.
a) USGBC b) TERI
c) LEED d) By own self
- 11) LEED gives rating in form of _____.
a) 1 star, 2 star, 3 star, 4 star, 5 star
b) Platinum, Gold, Silver
c) Both a) and b)
d) None of the above
- 12) The principle of radiator of an engine cooling system is to _____.
a) Increase the air speed as it flows over the hot surface
b) Spread out the hot water over a large area
c) Acts as a reservoir for the water
d) Causes a heat flow by convection currents
- 13) Which of the following accounts for T in the IPAT equation?
a) Time b) Threshold population
c) Technology d) None of the above
- 14) Which of the following is the least energy efficient system?
a) Internal combustion engine b) Fuel cell
c) Incandescent light d) Human body

Seat No.	
----------	--

Set

P

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Discuss reuse of any five construction materials in detail. | 05 |
| | b) | Explain principles of Sustainability while planning the city of 1 lakh population. | 05 |
| Q.3 | a) | Explain AAC blocks along with merits and demerits in detail. | 05 |
| | b) | Elucidate applications of cement fibre board in green building. | 04 |
| Q.4 | a) | What is sustainability? Explain pillars of sustainability with a neat diagram. Discuss interaction between pillars in the sustainability. | 05 |
| | b) | Define self-weight concrete? Provide minimum three advantages of self-weight concrete in construction of green building. | 04 |
| Q.5 | a) | Explain benefits of Nano technology in cement concrete used in conventional RCC building. | 05 |
| | b) | Define ferrocement Technology? Provide minimum three applications of ferrocement technology in Civil Engineering. | 04 |

Section – II

- | | | | |
|------------|-------------------------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | What is GRIHA? Explain various sections allocated in the GRIHA in detail. | 05 |
| | b) | Explain effects of changing seasons on functioning of green buildings. | 05 |
| Q.7 | a) | Explain certification procedure of LEED in detail. | 05 |
| | b) | Discuss numerous applications of sustainable technology in 'Building Stock Management'. | 04 |
| Q.8 | a) | Explain various methods of effective cooling and heating systems in Green Buildings. | 05 |
| | b) | Provide minimum four decentralized water conservation systems in green building. | 04 |
| Q.9 | Discuss the following: | | 09 |
| | a) | 5R's of Green Building | |
| | b) | Low energy materials | |
| | c) | Structure of green building | |

Seat
No.

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary and mention it clearly.
 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) Which of the following is not considered in an LCA?
 - a) Energy consumption
 - b) Water usage
 - c) Greenhouse gas emissions
 - d) Aesthetics
- 2) Which of the following green rating systems are currently working in India?
 - a) LEED
 - b) GRIHA
 - c) Both a) and b)
 - d) None of the above
- 3) GRIHA has been prepared by _____.
 - a) USGBC
 - b) TERI
 - c) LEED
 - d) By own self
- 4) LEED gives rating in form of _____.
 - a) 1 star, 2 star, 3 star, 4 star, 5 star
 - b) Platinum, Gold, Silver
 - c) Both a) and b)
 - d) None of the above
- 5) The principle of radiator of an engine cooling system is to _____.
 - a) Increase the air speed as it flows over the hot surface
 - b) Spread out the hot water over a large area
 - c) Acts as a reservoir for the water
 - d) Causes a heat flow by convection currents
- 6) Which of the following accounts for T in the IPAT equation?
 - a) Time
 - b) Threshold population
 - c) Technology
 - d) None of the above
- 7) Which of the following is the least energy efficient system?
 - a) Internal combustion engine
 - b) Fuel cell
 - c) Incandescent light
 - d) Human body

Seat No.	
----------	--

Set

Q

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to right indicate full marks.
 - 4) Assume suitable data wherever necessary and mention it clearly.
 - 5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Discuss reuse of any five construction materials in detail. | 05 |
| | b) | Explain principles of Sustainability while planning the city of 1 lakh population. | 05 |
| Q.3 | a) | Explain AAC blocks along with merits and demerits in detail. | 05 |
| | b) | Elucidate applications of cement fibre board in green building. | 04 |
| Q.4 | a) | What is sustainability? Explain pillars of sustainability with a neat diagram. Discuss interaction between pillars in the sustainability. | 05 |
| | b) | Define self-weight concrete? Provide minimum three advantages of self-weight concrete in construction of green building. | 04 |
| Q.5 | a) | Explain benefits of Nano technology in cement concrete used in conventional RCC building. | 05 |
| | b) | Define ferrocement Technology? Provide minimum three applications of ferrocement technology in Civil Engineering. | 04 |

Section – II

- | | | | |
|------------|-------------------------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | What is GRIHA? Explain various sections allocated in the GRIHA in detail. | 05 |
| | b) | Explain effects of changing seasons on functioning of green buildings. | 05 |
| Q.7 | a) | Explain certification procedure of LEED in detail. | 05 |
| | b) | Discuss numerous applications of sustainable technology in 'Building Stock Management'. | 04 |
| Q.8 | a) | Explain various methods of effective cooling and heating systems in Green Buildings. | 05 |
| | b) | Provide minimum four decentralized water conservation systems in green building. | 04 |
| Q.9 | Discuss the following: | | 09 |
| | a) | 5R's of Green Building | |
| | b) | Low energy materials | |
| | c) | Structure of green building | |

Seat No.	
----------	--

Set **R**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions**14**

- 1) LEED gives rating in form of _____.
a) 1 star, 2 star, 3 star, 4 star, 5 star
b) Platinum, Gold, Silver
c) Both a) and b)
d) None of the above
- 2) The principle of radiator of an engine cooling system is to _____.
a) Increase the air speed as it flows over the hot surface
b) Spread out the hot water over a large area
c) Acts as a reservoir for the water
d) Causes a heat flow by convection currents
- 3) Which of the following accounts for T in the IPAT equation?
a) Time
b) Threshold population
c) Technology
d) None of the above
- 4) Which of the following is the least energy efficient system?
a) Internal combustion engine
b) Fuel cell
c) Incandescent light
d) Human body
- 5) Which of the following is not the pillar of sustainability?
a) Economy
b) Environment
c) Ecology
d) Society
- 6) Which of the following elements should be used optimum to make a green building?
a) Agni
b) Jal
c) Prithvi
d) All of the above
- 7) Principles of sustainability doesn't include _____.
a) Balance & equity
b) System thinking
c) Spiritual values
d) None of these
- 8) Which of the following is not an economic benefit for a green building?
a) 20 - 30 % energy used
b) 20 - 30 % less water used
c) Enhance asset value
d) None of these

- 9) Sustainability can't be achieved if _____.
- a) Different societies work with unique mindset
 - b) Different societies work with different mindsets
 - c) Similar societies work with singular mindset
 - d) Similar societies work with different mindsets
- 10) Which of the following is not the purpose of a green building?
- a) To reduce use of water
 - b) To minimize damage of the environment
 - c) Re-use of waste materials
 - d) None of the above
- 11) How can sustainable engineering contribute to a circular economy?
- a) By promoting linear production and consumption practices
 - b) By designing products for reuse, recycling and resource recovery
 - c) By disregarding environmental considerations in engineering decisions
 - d) By prioritizing short term economic gains
- 12) Which of the following is not considered in an LCA?
- a) Energy consumption
 - b) Water usage
 - c) Greenhouse gas emissions
 - d) Aesthetics
- 13) Which of the following green rating systems are currently working in India?
- a) LEED
 - b) GRIHA
 - c) Both a) and b)
 - d) None of the above
- 14) GRIHA has been prepared by _____.
- a) USGBC
 - b) TERI
 - c) LEED
 - d) By own self

Seat No.	
----------	--

Set **R**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to right indicate full marks.
 - 4) Assume suitable data wherever necessary and mention it clearly.
 - 5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Discuss reuse of any five construction materials in detail. | 05 |
| | b) | Explain principles of Sustainability while planning the city of 1 lakh population. | 05 |
| Q.3 | a) | Explain AAC blocks along with merits and demerits in detail. | 05 |
| | b) | Elucidate applications of cement fibre board in green building. | 04 |
| Q.4 | a) | What is sustainability? Explain pillars of sustainability with a neat diagram. Discuss interaction between pillars in the sustainability. | 05 |
| | b) | Define self-weight concrete? Provide minimum three advantages of self-weight concrete in construction of green building. | 04 |
| Q.5 | a) | Explain benefits of Nano technology in cement concrete used in conventional RCC building. | 05 |
| | b) | Define ferrocement Technology? Provide minimum three applications of ferrocement technology in Civil Engineering. | 04 |

Section – II

- | | | | |
|------------|-------------------------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | What is GRIHA? Explain various sections allocated in the GRIHA in detail. | 05 |
| | b) | Explain effects of changing seasons on functioning of green buildings. | 05 |
| Q.7 | a) | Explain certification procedure of LEED in detail. | 05 |
| | b) | Discuss numerous applications of sustainable technology in 'Building Stock Management'. | 04 |
| Q.8 | a) | Explain various methods of effective cooling and heating systems in Green Buildings. | 05 |
| | b) | Provide minimum four decentralized water conservation systems in green building. | 04 |
| Q.9 | Discuss the following: | | 09 |
| | a) | 5R's of Green Building | |
| | b) | Low energy materials | |
| | c) | Structure of green building | |

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary and mention it clearly.
 - 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) Which of the following is not the purpose of a green building?
 - a) To reduce use of water
 - b) To minimize damage of the environment
 - c) Re-use of waste materials
 - d) None of the above
- 2) How can sustainable engineering contribute to a circular economy?
 - a) By promoting linear production and consumption practices
 - b) By designing products for reuse, recycling and resource recovery
 - c) By disregarding environmental considerations in engineering decisions
 - d) By prioritizing short term economic gains
- 3) Which of the following is not considered in an LCA?
 - a) Energy consumption
 - b) Water usage
 - c) Greenhouse gas emissions
 - d) Aesthetics
- 4) Which of the following green rating systems are currently working in India?
 - a) LEED
 - b) GRIHA
 - c) Both a) and b)
 - d) None of the above
- 5) GRIHA has been prepared by _____.
 - a) USGBC
 - b) TERI
 - c) LEED
 - d) By own self
- 6) LEED gives rating in form of _____.
 - a) 1 star, 2 star, 3 star, 4 star, 5 star
 - b) Platinum, Gold, Silver
 - c) Both a) and b)
 - d) None of the above
- 7) The principle of radiator of an engine cooling system is to _____.
 - a) Increase the air speed as it flows over the hot surface
 - b) Spread out the hot water over a large area
 - c) Acts as a reservoir for the water
 - d) Causes a heat flow by convection currents

- 8) Which of the following accounts for T in the IPAT equation?
a) Time
b) Threshold population
c) Technology
d) None of the above
- 9) Which of the following is the least energy efficient system?
a) Internal combustion engine
b) Fuel cell
c) Incandescent light
d) Human body
- 10) Which of the following is not the pillar of sustainability?
a) Economy
b) Environment
c) Ecology
d) Society
- 11) Which of the following elements should be used optimum to make a green building?
a) Agni
b) Jal
c) Prithvi
d) All of the above
- 12) Principles of sustainability doesn't include _____.
a) Balance & equity
b) System thinking
c) Spiritual values
d) None of these
- 13) Which of the following is not an economic benefit for a green building?
a) 20 - 30 % energy used
b) 20 - 30 % less water used
c) Enhance asset value
d) None of these
- 14) Sustainability can't be achieved if _____.
a) Different societies work with unique mindset
b) Different societies work with different mindsets
c) Similar societies work with singular mindset
d) Similar societies work with different mindsets

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Sustainable Materials and Green Buildings (BTN01622)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 - 3) Figures to right indicate full marks.
 - 4) Assume suitable data wherever necessary and mention it clearly.
 - 5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Discuss reuse of any five construction materials in detail. | 05 |
| | b) | Explain principles of Sustainability while planning the city of 1 lakh population. | 05 |
| Q.3 | a) | Explain AAC blocks along with merits and demerits in detail. | 05 |
| | b) | Elucidate applications of cement fibre board in green building. | 04 |
| Q.4 | a) | What is sustainability? Explain pillars of sustainability with a neat diagram. Discuss interaction between pillars in the sustainability. | 05 |
| | b) | Define self-weight concrete? Provide minimum three advantages of self-weight concrete in construction of green building. | 04 |
| Q.5 | a) | Explain benefits of Nano technology in cement concrete used in conventional RCC building. | 05 |
| | b) | Define ferrocement Technology? Provide minimum three applications of ferrocement technology in Civil Engineering. | 04 |

Section – II

- | | | | |
|------------|-------------------------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | What is GRIHA? Explain various sections allocated in the GRIHA in detail. | 05 |
| | b) | Explain effects of changing seasons on functioning of green buildings. | 05 |
| Q.7 | a) | Explain certification procedure of LEED in detail. | 05 |
| | b) | Discuss numerous applications of sustainable technology in 'Building Stock Management'. | 04 |
| Q.8 | a) | Explain various methods of effective cooling and heating systems in Green Buildings. | 05 |
| | b) | Provide minimum four decentralized water conservation systems in green building. | 04 |
| Q.9 | Discuss the following: | | 09 |
| | a) | 5R's of Green Building | |
| | b) | Low energy materials | |
| | c) | Structure of green building | |

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which of the following is not method for multi-objective optimization?
 - a) Fibonacci Search Method
 - b) Unidirectional Search Method
 - c) Direct Search Method
 - d) Newton's Method
- 2) A unidirectional search is required in the following methods _____.
 - a) Steep-Descent Method
 - b) Newton's Method
 - c) Powell's Conjugate direction Method
 - d) All of these
- 3) Which of the following is specialized method for optimization?
 - a) Integer Programming
 - b) Geometric Programming
 - c) Simulated Annealing
 - d) All of these
- 4) Global Optimization considers _____.
 - a) Entire Region
 - b) Only Boundary Points
 - c) Both a and b
 - d) None of these
- 5) Optimization Algorithm is:- _____.
 - a) Stepwise Procedure to solve an Optimization Problem
 - b) Maximization of Function
 - c) Minimization of Function
 - d) All of these
- 6) Which of the following is not application of Optimization?
 - a) Maximize Discharge through Pipe
 - b) Minimize the cost of Construction
 - c) Calculating B.M. of Beam
 - d) None of these
- 7) Which of the following is not involved in the Single Variable Optimization?
 - a) Fibonacci Search Method
 - b) Newton Raphson Method
 - c) Bisection Method
 - d) Unidirectional Search Method
- 8) Gradient-Based Methods are _____.
 - a) Newton Raphson Method
 - b) Bisection Method
 - c) Both 'a' and 'b'
 - d) None of these

- 9) Types of Optimization Algorithm are: _____.
- a) Single Variable Algorithm b) Multi Variable Algorithm
c) Specialized Algorithm d) All of these
- 10) In Which of the following case is application of Optimization is not used _____.
- a) Maximize Discharge through Pipe
b) Minimize the cost of Construction
c) Calculation of shear force in column
d) None of these
- 11) Which of the following is involved in the multi Variable Optimization?
- a) Fibonacci Search Method b) Newton Raphson Method
c) Newton's Method d) Bisection Method
- 12) Region Elimination Methods are _____.
- a) Fibonacci Search Method b) Golden Section Method
c) Both 'a' and 'b' d) None of these
- 13) Process involved in Genetic Algorithm are: _____.
- a) Selection b) Mutation
c) Cross-over d) All of these
- 14) Re-analysis techniques in optimization are _____.
- a) Fast Techniques b) Slow Techniques
c) Both a and b d) None of these

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Answer the following (Any Two) 12

- Explain the steps involved in the formulation of optimization problem.
- Explain 'Optimization Algorithm' in detail.
- Explain in detail various methods available for optimization.

Q.3 Answer the following (Any Two) 08

- Solve an optimization problem for the function.
 $f(x) = x^2 + \frac{45}{x}$ between the points (0,5) and $n = 15$ using 'Exhaustic Search Method.'
- Solve an optimization problem using 'Fibonacci Search Method' with the function.
 $f(x) = x^2 + \frac{20}{x}$, $n = 3$, $k = 2$, $a = 0.4$, $b = 6.5$
 $F_0 = 1, F_1 = 1, F_2 = 2, F_3 = 3, F_4 = 5$
- Optimize the given function.
 $f(x) = x^2 - 2x + 2$
 $a = 0$, $b = 5$, $\varepsilon = 10^{-3}$. Use Bisection Method and perform 2 iteration.

Q.4 Answer the following (Any Two) 08

- Optimize the given function using uni-directional search.
 $f(x) = x_1^2 - 2x_2 + 2$,
 $\varepsilon = 10^{-3}$, $x^{(0)} = (1,0)$ & search direction is $S = (2,3)$
- Problem optimization search using steepest decent method.
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$, $x^{(0)} = (1,1)$
- Perform optimization search using Powell's conjugate direction Method.
 $f(x) = (x_1 - 10)^2 + (x_2 - 8)^2$
 $x^{(0)} = (2,1)$, $S_1 = (1,0)$, $S_2 = (0,1)$, $\varepsilon = 10^{-3}$

Section – II

- Q.5 Answer the following (Any Two) 12**
- a) Optimize the objective function.
 $z = 5x + 3y$ Subjected to constraints
 $9x + 5y \leq 45,$
 $x \leq 3$ & $y \leq 2$
- b) Optimize the function
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$
Using geometric programming.
- c) Optimize the given function.
 $f(x) = 400 - x_1^2 - 2x_1x_2 - x_2^2$ using Simulated annealing where,
 $x^{(0)} = (1,1), \varepsilon = 10^{-3}$
- Q.6 Answer the following (Any Two) 08**
- a) Explain in detail 'Genetic Algorithm'.
- b) Explain the various operator of 'Genetic Algorithm?'
- c) Explain similarities between Genetic Algorithm & traditional methods.
- Q.7 Answer the following. (Any Two) 08**
- a) Explain 'Reduction in size of optimization problem?'
- b) Explain 'Fast – Re – Analysis Technique.'
- c) Explain in detail 'Multi – Level Optimization.'

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Gradient-Based Methods are _____.
a) Newton Raphson Method b) Bisection Method
c) Both 'a' and 'b' d) None of these
- 2) Types of Optimization Algorithm are: _____.
a) Single Variable Algorithm b) Multi Variable Algorithm
c) Specialized Algorithm d) All of these
- 3) In Which of the following case is application of Optimization is not used _____.
a) Maximize Discharge through Pipe
b) Minimize the cost of Construction
c) Calculation of shear force in column
d) None of these
- 4) Which of the following is involved in the multi Variable Optimization?
a) Fibonacci Search Method b) Newton Raphson Method
c) Newton's Method d) Bisection Method
- 5) Region Elimination Methods are _____.
a) Fibonacci Search Method b) Golden Section Method
c) Both 'a' and 'b' d) None of these
- 6) Process involved in Genetic Algorithm are: _____.
a) Selection b) Mutation
c) Cross-over d) All of these
- 7) Re-analysis techniques in optimization are _____.
a) Fast Techniques b) Slow Techniques
c) Both a and b d) None of these
- 8) Which of the following is not method for multi-objective optimization?
a) Fibonacci Search Method b) Unidirectional Search Method
c) Direct Search Method d) Newton's Method

- 9) A unidirectional search is required in the following methods _____.
- a) Steep-Descent Method
 - b) Newton's Method
 - c) Powell's Conjugate direction Method
 - d) All of these
- 10) Which of the following is specialized method for optimization?
- a) Integer Programming
 - b) Geometric Programming
 - c) Simulated Annealing
 - d) All of these
- 11) Global Optimization considers _____.
- a) Entire Region
 - b) Only Boundary Points
 - c) Both a and b
 - d) None of these
- 12) Optimization Algorithm is:- _____.
- a) Stepwise Procedure to solve an Optimization Problem
 - b) Maximization of Function
 - c) Minimization of Function
 - d) All of these
- 13) Which of the following is not application of Optimization?
- a) Maximize Discharge through Pipe
 - b) Minimize the cost of Construction
 - c) Calculating B.M. of Beam
 - d) None of these
- 14) Which of the following is not involved in the Single Variable Optimization?
- a) Fibonacci Search Method
 - b) Newton Raphson Method
 - c) Bisection Method
 - d) Unidirectional Search Method

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Answer the following (Any Two) 12

- Explain the steps involved in the formulation of optimization problem.
- Explain 'Optimization Algorithm' in detail.
- Explain in detail various methods available for optimization.

Q.3 Answer the following (Any Two) 08

- Solve an optimization problem for the function.
 $f(x) = x^2 + \frac{45}{x}$ between the points (0,5) and $n = 15$ using 'Exhaustic Search Method.'
- Solve an optimization problem using 'Fibonacci Search Method' with the function.
 $f(x) = x^2 + \frac{20}{x}$, $n = 3$, $k = 2$, $a = 0.4$, $b = 6.5$
 $F_0 = 1, F_1 = 1, F_2 = 2, F_3 = 3, F_4 = 5$
- Optimize the given function.
 $f(x) = x^2 - 2x + 2$
 $a = 0$, $b = 5$, $\varepsilon = 10^{-3}$. Use Bisection Method and perform 2 iteration.

Q.4 Answer the following (Any Two) 08

- Optimize the given function using uni-directional search.
 $f(x) = x_1^2 - 2x_2 + 2$,
 $\varepsilon = 10^{-3}$, $x^{(0)} = (1,0)$ & search direction is $S = (2,3)$
- Problem optimization search using steepest decent method.
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$, $x^{(0)} = (1,1)$
- Perform optimization search using Powell's conjugate direction Method.
 $f(x) = (x_1 - 10)^2 + (x_2 - 8)^2$
 $x^{(0)} = (2,1)$, $S_1 = (1,0)$, $S_2 = (0,1)$, $\varepsilon = 10^{-3}$

Section – II

- Q.5 Answer the following (Any Two) 12**
- a) Optimize the objective function.
 $z = 5x + 3y$ Subjected to constraints
 $9x + 5y \leq 45,$
 $x \leq 3$ & $y \leq 2$
- b) Optimize the function
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$
Using geometric programming.
- c) Optimize the given function.
 $f(x) = 400 - x_1^2 - 2x_1x_2 - x_2^2$ using Simulated annealing where,
 $x^{(0)} = (1,1), \varepsilon = 10^{-3}$
- Q.6 Answer the following (Any Two) 08**
- a) Explain in detail 'Genetic Algorithm'.
- b) Explain the various operator of 'Genetic Algorithm?'
- c) Explain similarities between Genetic Algorithm & traditional methods.
- Q.7 Answer the following. (Any Two) 08**
- a) Explain 'Reduction in size of optimization problem?'
- b) Explain 'Fast – Re – Analysis Technique.'
- c) Explain in detail 'Multi – Level Optimization.'

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which of the following is involved in the multi Variable Optimization?
 - a) Fibonacci Search Method
 - b) Newton Raphson Method
 - c) Newton's Method
 - d) Bisection Method
- 2) Region Elimination Methods are _____.
 - a) Fibonacci Search Method
 - b) Golden Section Method
 - c) Both 'a' and 'b'
 - d) None of these
- 3) Process involved in Genetic Algorithm are: _____.
 - a) Selection
 - b) Mutation
 - c) Cross-over
 - d) All of these
- 4) Re-analysis techniques in optimization are _____.
 - a) Fast Techniques
 - b) Slow Techniques
 - c) Both a and b
 - d) None of these
- 5) Which of the following is not method for multi-objective optimization?
 - a) Fibonacci Search Method
 - b) Unidirectional Search Method
 - c) Direct Search Method
 - d) Newton's Method
- 6) A unidirectional search is required in the following methods _____.
 - a) Steep-Descent Method
 - b) Newton's Method
 - c) Powell's Conjugate direction Method
 - d) All of these
- 7) Which of the following is specialized method for optimization?
 - a) Integer Programming
 - b) Geometric Programming
 - c) Simulated Annealing
 - d) All of these
- 8) Global Optimization considers _____.
 - a) Entire Region
 - b) Only Boundary Points
 - c) Both a and b
 - d) None of these

- 9) Optimization Algorithm is:- _____.
- a) Stepwise Procedure to solve an Optimization Problem
 - b) Maximization of Function
 - c) Minimization of Function
 - d) All of these
- 10) Which of the following is not application of Optimization?
- a) Maximize Discharge through Pipe
 - b) Minimize the cost of Construction
 - c) Calculating B.M. of Beam
 - d) None of these
- 11) Which of the following is not involved in the Single Variable Optimization?
- a) Fibonacci Search Method
 - b) Newton Raphson Method
 - c) Bisection Method
 - d) Unidirectional Search Method
- 12) Gradient-Based Methods are _____.
- a) Newton Raphson Method
 - b) Bisection Method
 - c) Both 'a' and 'b'
 - d) None of these
- 13) Types of Optimization Algorithm are: _____.
- a) Single Variable Algorithm
 - b) Multi Variable Algorithm
 - c) Specialized Algorithm
 - d) All of these
- 14) In Which of the following case is application of Optimization is not used _____.
- a) Maximize Discharge through Pipe
 - b) Minimize the cost of Construction
 - c) Calculation of shear force in column
 - d) None of these

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Answer the following (Any Two) 12

- Explain the steps involved in the formulation of optimization problem.
- Explain 'Optimization Algorithm' in detail.
- Explain in detail various methods available for optimization.

Q.3 Answer the following (Any Two) 08

- Solve an optimization problem for the function.
 $f(x) = x^2 + \frac{45}{x}$ between the points (0,5) and $n = 15$ using 'Exhaustic Search Method.'
- Solve an optimization problem using 'Fibonacci Search Method' with the function.
 $f(x) = x^2 + \frac{20}{x}$, $n = 3$, $k = 2$, $a = 0.4$, $b = 6.5$
 $F_0 = 1, F_1 = 1, F_2 = 2, F_3 = 3, F_4 = 5$
- Optimize the given function.
 $f(x) = x^2 - 2x + 2$
 $a = 0$, $b = 5$, $\varepsilon = 10^{-3}$. Use Bisection Method and perform 2 iteration.

Q.4 Answer the following (Any Two) 08

- Optimize the given function using uni-directional search.
 $f(x) = x_1^2 - 2x_2 + 2$,
 $\varepsilon = 10^{-3}$, $x^{(0)} = (1,0)$ & search direction is $S = (2,3)$
- Problem optimization search using steepest decent method.
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$, $x^{(0)} = (1,1)$
- Perform optimization search using Powell's conjugate direction Method.
 $f(x) = (x_1 - 10)^2 + (x_2 - 8)^2$
 $x^{(0)} = (2,1)$, $S_1 = (1,0)$, $S_2 = (0,1)$, $\varepsilon = 10^{-3}$

Section – II

- Q.5 Answer the following (Any Two) 12**
- a) Optimize the objective function.
 $z = 5x + 3y$ Subjected to constraints
 $9x + 5y \leq 45,$
 $x \leq 3$ & $y \leq 2$
- b) Optimize the function
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$
Using geometric programming.
- c) Optimize the given function.
 $f(x) = 400 - x_1^2 - 2x_1x_2 - x_2^2$ using Simulated annealing where,
 $x^{(0)} = (1,1), \varepsilon = 10^{-3}$
- Q.6 Answer the following (Any Two) 08**
- a) Explain in detail 'Genetic Algorithm'.
- b) Explain the various operator of 'Genetic Algorithm?'
- c) Explain similarities between Genetic Algorithm & traditional methods.
- Q.7 Answer the following. (Any Two) 08**
- a) Explain 'Reduction in size of optimization problem?'
- b) Explain 'Fast – Re – Analysis Technique.'
- c) Explain in detail 'Multi – Level Optimization.'

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which of the following is not application of Optimization?
 - a) Maximize Discharge through Pipe
 - b) Minimize the cost of Construction
 - c) Calculating B.M. of Beam
 - d) None of these
- 2) Which of the following is not involved in the Single Variable Optimization?
 - a) Fibonacci Search Method
 - b) Newton Raphson Method
 - c) Bisection Method
 - d) Unidirectional Search Method
- 3) Gradient-Based Methods are _____.
 - a) Newton Raphson Method
 - b) Bisection Method
 - c) Both 'a' and 'b'
 - d) None of these
- 4) Types of Optimization Algorithm are: _____.
 - a) Single Variable Algorithm
 - b) Multi Variable Algorithm
 - c) Specialized Algorithm
 - d) All of these
- 5) In Which of the following case is application of Optimization is not used _____.
 - a) Maximize Discharge through Pipe
 - b) Minimize the cost of Construction
 - c) Calculation of shear force in column
 - d) None of these
- 6) Which of the following is involved in the multi Variable Optimization?
 - a) Fibonacci Search Method
 - b) Newton Raphson Method
 - c) Newton's Method
 - d) Bisection Method
- 7) Region Elimination Methods are _____.
 - a) Fibonacci Search Method
 - b) Golden Section Method
 - c) Both 'a' and 'b'
 - d) None of these
- 8) Process involved in Genetic Algorithm are: _____.
 - a) Selection
 - b) Mutation
 - c) Cross-over
 - d) All of these

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING**

Engineering System Design Optimization (BTN01623)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Answer the following (Any Two) 12

- Explain the steps involved in the formulation of optimization problem.
- Explain 'Optimization Algorithm' in detail.
- Explain in detail various methods available for optimization.

Q.3 Answer the following (Any Two) 08

- Solve an optimization problem for the function.
 $f(x) = x^2 + \frac{45}{x}$ between the points (0,5) and $n = 15$ using 'Exhaustic Search Method.'
- Solve an optimization problem using 'Fibonacci Search Method' with the function.
 $f(x) = x^2 + \frac{20}{x}$, $n = 3$, $k = 2$, $a = 0.4$, $b = 6.5$
 $F_0 = 1, F_1 = 1, F_2 = 2, F_3 = 3, F_4 = 5$
- Optimize the given function.
 $f(x) = x^2 - 2x + 2$
 $a = 0$, $b = 5$, $\varepsilon = 10^{-3}$. Use Bisection Method and perform 2 iteration.

Q.4 Answer the following (Any Two) 08

- Optimize the given function using uni-directional search.
 $f(x) = x_1^2 - 2x_2 + 2$,
 $\varepsilon = 10^{-3}$, $x^{(0)} = (1,0)$ & search direction is $S = (2,3)$
- Problem optimization search using steepest decent method.
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$, $x^{(0)} = (1,1)$
- Perform optimization search using Powell's conjugate direction Method.
 $f(x) = (x_1 - 10)^2 + (x_2 - 8)^2$
 $x^{(0)} = (2,1)$, $S_1 = (1,0)$, $S_2 = (0,1)$, $\varepsilon = 10^{-3}$

Section – II

- Q.5 Answer the following (Any Two) 12**
- a) Optimize the objective function.
 $z = 5x + 3y$ Subjected to constraints
 $9x + 5y \leq 45,$
 $x \leq 3$ & $y \leq 2$
- b) Optimize the function
 $f(x) = x_1^2 - 2x_1x_2 - x_2^2$
Using geometric programming.
- c) Optimize the given function.
 $f(x) = 400 - x_1^2 - 2x_1x_2 - x_2^2$ using Simulated annealing where,
 $x^{(0)} = (1,1), \varepsilon = 10^{-3}$
- Q.6 Answer the following (Any Two) 08**
- a) Explain in detail 'Genetic Algorithm'.
- b) Explain the various operator of 'Genetic Algorithm?'
- c) Explain similarities between Genetic Algorithm & traditional methods.
- Q.7 Answer the following. (Any Two) 08**
- a) Explain 'Reduction in size of optimization problem?'
- b) Explain 'Fast – Re – Analysis Technique.'
- c) Explain in detail 'Multi – Level Optimization.'

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Estimating, Costing and Valuation (BTN01701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) The most reliable estimate is _____.
a) Plinth area estimate b) Detailed estimate
c) Preliminary estimate d) Cube rate estimate
- 2) Administrative head of public works department who is directly responsible to government is _____.
a) Superintending engineer b) Chief engineer
c) Assistant engineer d) Executive engineer
- 3) For 15 mm thick cement plastering 1:6 on 100 sq.m. new brick work, the quantity of cement required is _____.
a) 0.200 m³ b) 0.247 m³
c) 0.274 m³ d) 0.343 m³
- 4) The expected out turn of cement concrete 1: 2: 4 per mason per day is _____.
a) 1.5 m³ b) 2.5 m³
c) 3.5 m³ d) 5.0 m³
- 5) Which of following not include in General Overhead?
a) Amenities to labor
b) Telephone bill, rent and taxes
c) Stationary, printing, postage charges
d) Travelling expenses
- 6) The value of the property (without being dismantled) at the end of the useful life period is known as _____.
a) Scrap value b) Salvage value
c) Junk value d) Book value
- 7) When actual cost of construction plus certain profit is paid to the contractor then such a contract is known as _____.
a) Unscheduled contract b) Nominated contract
c) Cost plus percentage contract d) Work order

Seat No.	
----------	--

Set	P
-----	---

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Estimating, Costing and Valuation (BTN01701)

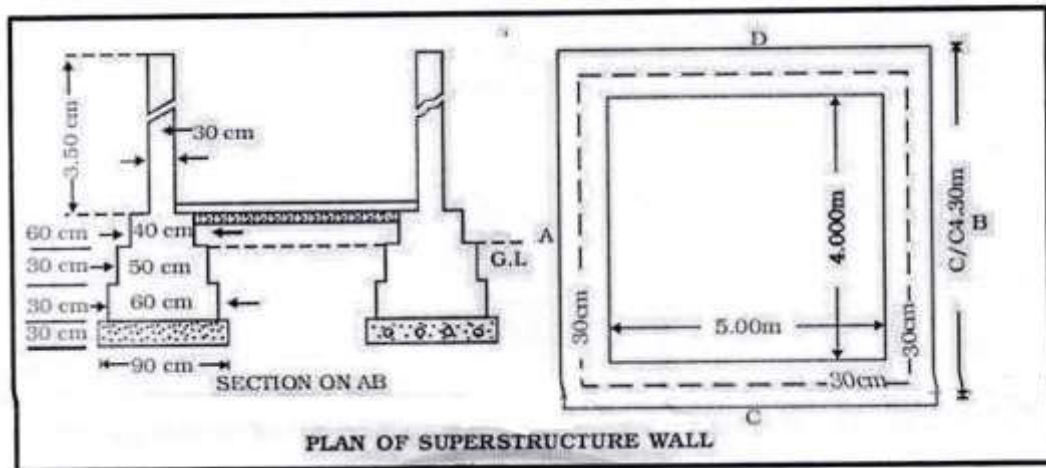
Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

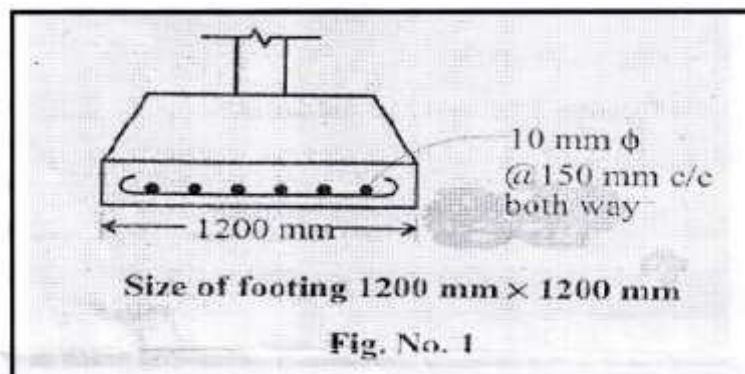
- Instructions:** 1) In Section I, Q. 2 is compulsory. Solve any two from remaining questions.
2) In Section II, Q. 6 is compulsory. Solve any two from remaining questions.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** a) Calculate the quantity of following item for a single room from given figure. **08**
b) Also prepare an Abstract sheet for these items by assuming suitable market rates. **04**



- Q.3** a) State the meaning of the term estimating and explain any four purposes of estimating. **04**
b) Write the detailed specifications for RCC Work of M20 Grade. **04**
- Q.4** a) Find quantity of 10 mm ϕ reinforcement in footing shown in fig. no. 1 and prepare schedule of reinforcement. **04**



- b) Write a short note on percentage breakup of the cost for civil work. **04**

- Q.5** a) Calculate the quantities of cement, sand and coarse aggregate for 40 m³ cement concrete having proportion (1:2:4). **04**
b) Write a thumb rules used for construction of building. **04**

Section – II

- Q.6** a) Prepare a tender notice for the work of construction of a hospital of 50 beds capacity RCC structure of 12,000 Sq. ft. built up area. Make suitable assumptions for required data. **08**
b) Explain the Envelope system used in tendering procedure. **04**
- Q.7** a) Explain following Acts **04**
i) Minimum Wages Act
ii) Workers Compensation Act
b) Write down the comparison between Item Rate Contract and Percentage Rate Contract. **04**
- Q.8** a) Explain different types of values - Market value, Scrap Value, Distress value and Speculation Value. **04**
b) A property fetches a monthly rent of Rs. 6000/-. The outgoings including sinking fund are up to 25% of gross income. If the rate of interest is 12% for perpetuity. Calculate year purchase and capitalized value. **04**
- Q.9** a) Explain factors affecting the valuation of the property. **04**
b) A concrete mixture was purchased at Rs. 8000/-. Assuming the salvage value to be Rs. 1000/- after 5 years, calculate the depreciation for each year by constant percentage method. **04**

- 7) The net present value (NPV) is _____.
- a) Equal to the sum of the present values of all cash flows
 - b) Equal to the sum of returns
 - c) Equal to the sum of all cash flows
 - d) None of the above
- 8) The most reliable estimate is _____.
- a) Plinth area estimate
 - b) Detailed estimate
 - c) Preliminary estimate
 - d) Cube rate estimate
- 9) Administrative head of public works department who is directly responsible to government is _____.
- a) Superintending engineer
 - b) Chief engineer
 - c) Assistant engineer
 - d) Executive engineer
- 10) For 15 mm thick cement plastering 1:6 on 100 sq.m. new brick work, the quantity of cement required is _____.
- a) 0.200 m³
 - b) 0.247 m³
 - c) 0.274 m³
 - d) 0.343 m³
- 11) The expected out turn of cement concrete 1: 2: 4 per mason per day is _____.
- a) 1.5 m³
 - b) 2.5 m³
 - c) 3.5 m³
 - d) 5.0 m³
- 12) Which of following not include in General Overhead?
- a) Amenities to labor
 - b) Telephone bill, rent and taxes
 - c) Stationary, printing, postage charges
 - d) Travelling expenses
- 13) The value of the property (without being dismantled) at the end of the useful life period is known as _____.
- a) Scrap value
 - b) Salvage value
 - c) Junk value
 - d) Book value
- 14) When actual cost of construction plus certain profit is paid to the contractor then such a contract is known as _____.
- a) Unscheduled contract
 - b) Nominated contract
 - c) Cost plus percentage contract
 - d) Work order

Seat No.	
----------	--

Set	Q
-----	---

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Estimating, Costing and Valuation (BTN01701)

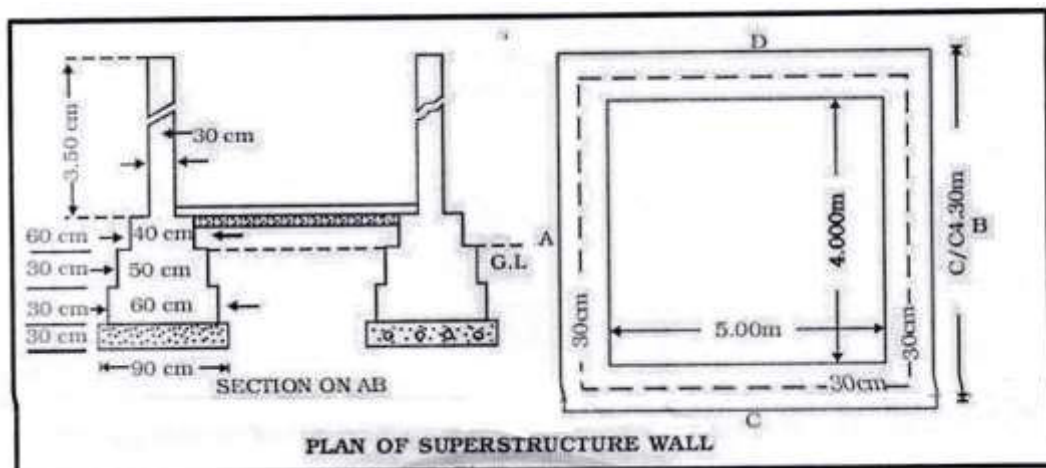
Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

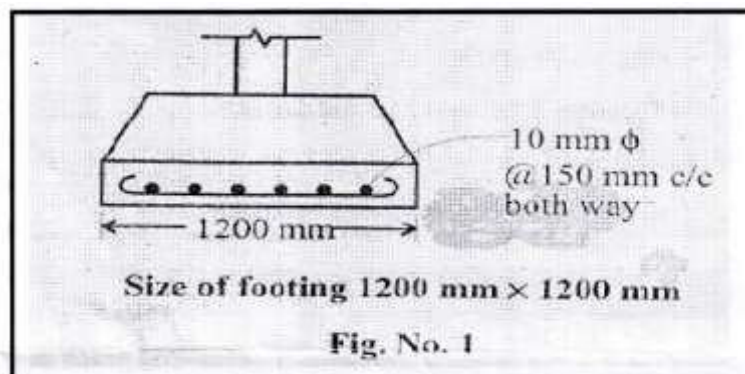
- Instructions:** 1) In Section I, Q. 2 is compulsory. Solve any two from remaining questions.
2) In Section II, Q. 6 is compulsory. Solve any two from remaining questions.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** a) Calculate the quantity of following item for a single room from given figure. **08**
b) Also prepare an Abstract sheet for these items by assuming suitable market rates. **04**



- Q.3** a) State the meaning of the term estimating and explain any four purposes of estimating. **04**
b) Write the detailed specifications for RCC Work of M20 Grade. **04**
- Q.4** a) Find quantity of 10 mm ϕ reinforcement in footing shown in fig. no. 1 and prepare schedule of reinforcement. **04**



- b) Write a short note on percentage breakup of the cost for civil work. **04**

- Q.5** a) Calculate the quantities of cement, sand and coarse aggregate for 40 m³ cement concrete having proportion (1:2:4). **04**
b) Write a thumb rules used for construction of building. **04**

Section – II

- Q.6** a) Prepare a tender notice for the work of construction of a hospital of 50 beds capacity RCC structure of 12,000 Sq. ft. built up area. Make suitable assumptions for required data. **08**
b) Explain the Envelope system used in tendering procedure. **04**
- Q.7** a) Explain following Acts **04**
i) Minimum Wages Act
ii) Workers Compensation Act
b) Write down the comparison between Item Rate Contract and Percentage Rate Contract. **04**
- Q.8** a) Explain different types of values - Market value, Scrap Value, Distress value and Speculation Value. **04**
b) A property fetches a monthly rent of Rs. 6000/-. The outgoings including sinking fund are up to 25% of gross income. If the rate of interest is 12% for perpetuity. Calculate year purchase and capitalized value. **04**
- Q.9** a) Explain factors affecting the valuation of the property. **04**
b) A concrete mixture was purchased at Rs. 8000/-. Assuming the salvage value to be Rs. 1000/- after 5 years, calculate the depreciation for each year by constant percentage method. **04**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Estimating, Costing and Valuation (BTN01701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Capitalized value of a property is the product of _____.
 - a) Annual income and annuity
 - b) Annual income and interest
 - c) Annual income and sinking fund
 - d) Annual income and year's purchase
- 2) In the straight line method, the expression for depreciation of a machine having purchasing cost C, scrap value S and useful life of the machinery N, is _____.
 - a) $(C + S)/N$
 - b) $(C - S)/N$
 - c) $[1 - (C/S) \times N]$
 - d) $[1 + (C/S) \times N]$
- 3) Calculate the annual percentage depreciation of a machine using the constant percentage method, it purchasing cost is Rs. 12000 and scrap value is Rs 3000 and the life of the machine is 8 years.
 - a) 9.37
 - b) 16
 - c) 26.67
 - d) 33.33
- 4) The net present value (NPV) is _____.
 - a) Equal to the sum of the present values of all cash flows
 - b) Equal to the sum of returns
 - c) Equal to the sum of all cash flows
 - d) None of the above
- 5) The most reliable estimate is _____.
 - a) Plinth area estimate
 - b) Detailed estimate
 - c) Preliminary estimate
 - d) Cube rate estimate
- 6) Administrative head of public works department who is directly responsible to government is _____.
 - a) Superintending engineer
 - b) Chief engineer
 - c) Assistant engineer
 - d) Executive engineer

Seat No.	
----------	--

Set	R
-----	---

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Estimating, Costing and Valuation (BTN01701)

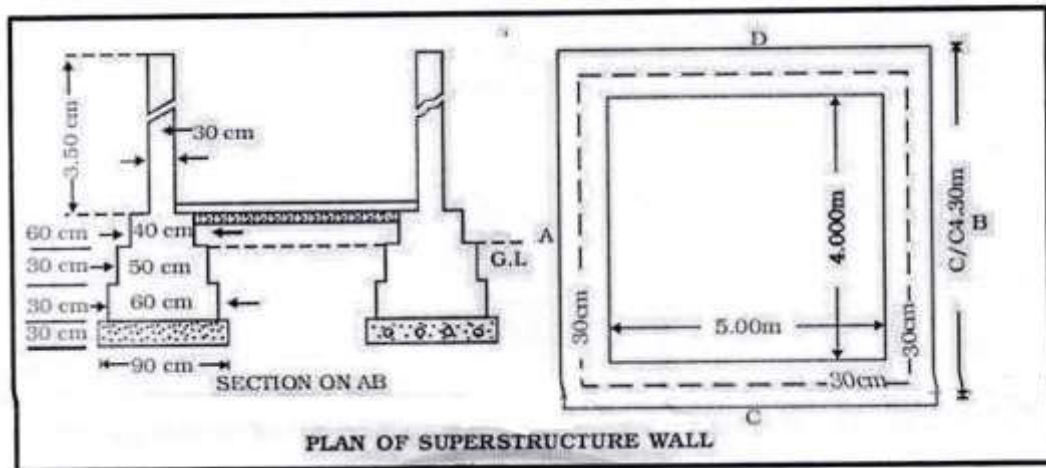
Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

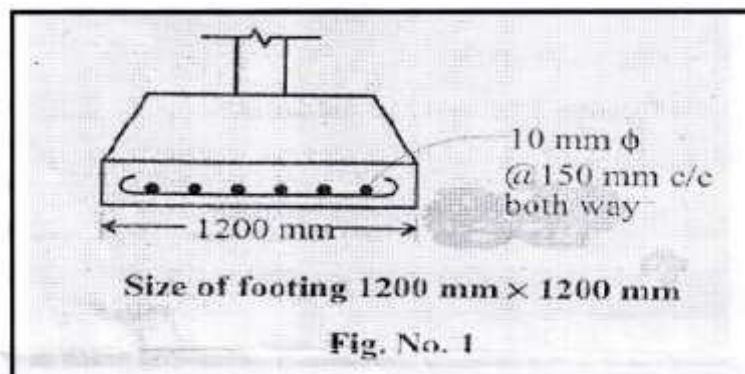
- Instructions:** 1) In Section I, Q. 2 is compulsory. Solve any two from remaining questions.
2) In Section II, Q. 6 is compulsory. Solve any two from remaining questions.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** a) Calculate the quantity of following item for a single room from given figure. **08**
b) Also prepare an Abstract sheet for these items by assuming suitable market rates. **04**



- Q.3** a) State the meaning of the term estimating and explain any four purposes of estimating. **04**
b) Write the detailed specifications for RCC Work of M20 Grade. **04**
- Q.4** a) Find quantity of 10 mm ϕ reinforcement in footing shown in fig. no. 1 and prepare schedule of reinforcement. **04**



- b) Write a short note on percentage breakup of the cost for civil work. **04**

- Q.5** a) Calculate the quantities of cement, sand and coarse aggregate for 40 m³ cement concrete having proportion (1:2:4). **04**
b) Write a thumb rules used for construction of building. **04**

Section – II

- Q.6** a) Prepare a tender notice for the work of construction of a hospital of 50 beds capacity RCC structure of 12,000 Sq. ft. built up area. Make suitable assumptions for required data. **08**
b) Explain the Envelope system used in tendering procedure. **04**
- Q.7** a) Explain following Acts **04**
i) Minimum Wages Act
ii) Workers Compensation Act
b) Write down the comparison between Item Rate Contract and Percentage Rate Contract. **04**
- Q.8** a) Explain different types of values - Market value, Scrap Value, Distress value and Speculation Value. **04**
b) A property fetches a monthly rent of Rs. 6000/-. The outgoings including sinking fund are up to 25% of gross income. If the rate of interest is 12% for perpetuity. Calculate year purchase and capitalized value. **04**
- Q.9** a) Explain factors affecting the valuation of the property. **04**
b) A concrete mixture was purchased at Rs. 8000/-. Assuming the salvage value to be Rs. 1000/- after 5 years, calculate the depreciation for each year by constant percentage method. **04**

Seat No.	
----------	--

Set	S
-----	---

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Estimating, Costing and Valuation (BTN01701)

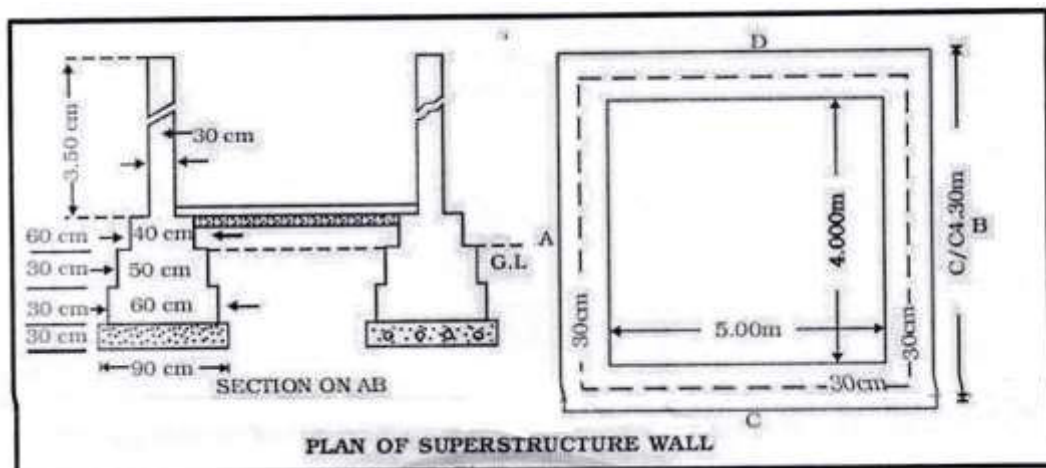
Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

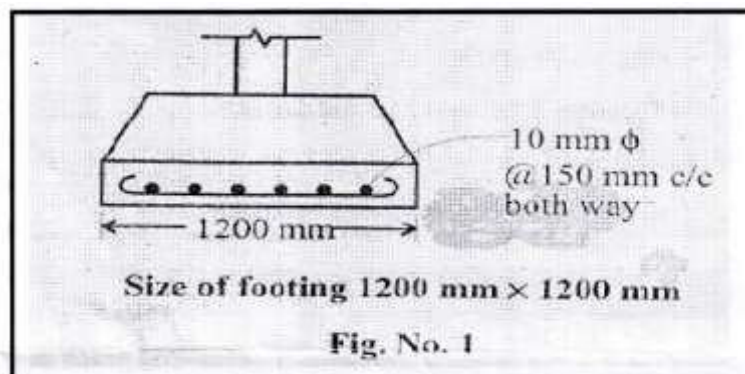
- Instructions:** 1) In Section I, Q. 2 is compulsory. Solve any two from remaining questions.
2) In Section II, Q. 6 is compulsory. Solve any two from remaining questions.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** a) Calculate the quantity of following item for a single room from given figure. **08**
b) Also prepare an Abstract sheet for these items by assuming suitable market rates. **04**



- Q.3** a) State the meaning of the term estimating and explain any four purposes of estimating. **04**
b) Write the detailed specifications for RCC Work of M20 Grade. **04**
- Q.4** a) Find quantity of 10 mm ϕ reinforcement in footing shown in fig. no. 1 and prepare schedule of reinforcement. **04**



- b) Write a short note on percentage breakup of the cost for civil work. **04**

- Q.5** a) Calculate the quantities of cement, sand and coarse aggregate for 40 m³ cement concrete having proportion (1:2:4). **04**
b) Write a thumb rules used for construction of building. **04**

Section – II

- Q.6** a) Prepare a tender notice for the work of construction of a hospital of 50 beds capacity RCC structure of 12,000 Sq. ft. built up area. Make suitable assumptions for required data. **08**
b) Explain the Envelope system used in tendering procedure. **04**
- Q.7** a) Explain following Acts **04**
i) Minimum Wages Act
ii) Workers Compensation Act
b) Write down the comparison between Item Rate Contract and Percentage Rate Contract. **04**
- Q.8** a) Explain different types of values - Market value, Scrap Value, Distress value and Speculation Value. **04**
b) A property fetches a monthly rent of Rs. 6000/-. The outgoings including sinking fund are up to 25% of gross income. If the rate of interest is 12% for perpetuity. Calculate year purchase and capitalized value. **04**
- Q.9** a) Explain factors affecting the valuation of the property. **04**
b) A concrete mixture was purchased at Rs. 8000/-. Assuming the salvage value to be Rs. 1000/- after 5 years, calculate the depreciation for each year by constant percentage method. **04**

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. (Each question carries 2 marks) 14

- 1) The zone factors indicate reasonably estimated values of _____ in the respective zone.
 - a) Peak intensity of earthquake
 - b) Peak ground velocity
 - c) Peak ground acceleration
 - d) Peak ground displacement
- 2) Which of the following describes the buildup and release of stress during an earthquake?
 - a) Modified Mercalli Scale
 - b) Elastic Rebound Theory
 - c) Principle of Superposition
 - d) Richter scale
- 3) To find out the desired solution of a governing equation of motion of 2 DOF systems, the initial conditions are _____.
 - a) Displacement at the supports is zero
 - b) At $t=0$, displacement and velocity are zero
 - c) At $t=T_n$, displacement and velocity are zero
 - d) Velocity at the supports is zero
- 4) Viscous damping is proportional to _____.
 - a) Displacement
 - b) Acceleration
 - c) Amplitude
 - d) Velocity
- 5) The structures having high natural period _____.
 - a) Attract less seismic forces and have large drift
 - b) Have large drift
 - c) Attract large seismic forces
 - d) Attract large seismic forces and have small drift
- 6) The effect of base isolation is _____.
 - a) To reduce the fundamental period
 - b) To nullify the period
 - c) To lengthen fundamental vibration period of structure
 - d) To reduce the mass participation
- 7) The definition of the soft storey mainly refers to _____.
 - a) Strength
 - b) Stiffness
 - c) Mass
 - d) Damping

Seat No.	
-------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 3 & Q. 6 are compulsory. Attempt any two questions from the remaining of each section
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and state it clearly.
 4) Use of only IS 1893 is allowed.

Section – I

- Q.2** Describe direct and indirect effect of an earthquake. **09**
- Q.3** A SDOF system consists of a mass with weight 1800 N and spring of stiffness 14 KN/mm. By testing the system, it was found that a force of 450 N produces relative velocity of 0.3 m/s. Find: **10**
 a) Damping ratio
 b) Damped frequency of vibration (ω_D)
 c) Logarithmic decrement (δ)
 d) The ratio of two successive amplitudes
- Q.4** Describe the force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **09**
- Q.5** Explain the concept of Duhamel's integral for damped systems. Derive its expression. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. four storied commercial building having plan dimensions as shown in Fig. 1 in zone III with following data. Determine the lateral forces and base shear. The all column sizes are 250 x 450 mm and beams sizes are 250 x 450 mm. The slab thickness is 140 mm and thickness of walls is 230 mm. The height of floor is 3.2 m and live load is 3.0 kN/m². IS 13920 will be used. The strata is hard. **10**

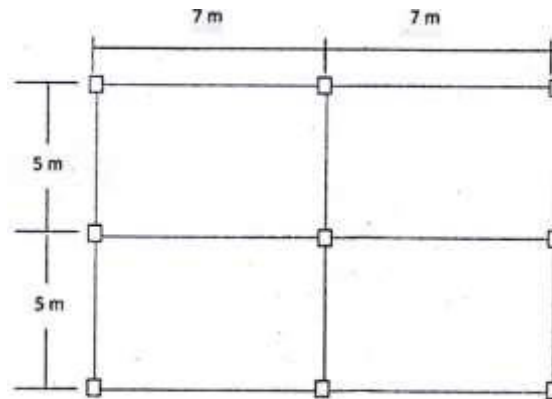


Figure 1 Q.6

- Q.7** Explain the planning aspects for earthquake resistant design of building. **09**
- Q.8** Explain the significance of ductility in earthquake resistant buildings. **09**
- Q.9** Describe the bands. At what levels in masonry building would you provide them? Give justification for each of them. **09**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. (Each question carries 2 marks) 14

- 1) The structures having high natural period _____.
 a) Attract less seismic forces and have large drift
 b) Have large drift
 c) Attract large seismic forces
 d) Attract large seismic forces and have small drift
- 2) The effect of base isolation is _____.
 a) To reduce the fundamental period
 b) To nullify the period
 c) To lengthen fundamental vibration period of structure
 d) To reduce the mass participation
- 3) The definition of the soft storey mainly refers to _____.
 a) Strength
 b) Stiffness
 c) Mass
 d) Damping
- 4) The zone factors indicate reasonably estimated values of _____ in the respective zone.
 a) Peak intensity of earthquake
 b) Peak ground velocity
 c) Peak ground acceleration
 d) Peak ground displacement
- 5) Which of the following describes the buildup and release of stress during an earthquake?
 a) Modified Mercalli Scale
 b) Elastic Rebound Theory
 c) Principle of Superposition
 d) Richter scale
- 6) To find out the desired solution of a governing equation of motion of 2 DOF systems, the initial conditions are _____.
 a) Displacement at the supports is zero
 b) At $t=0$, displacement and velocity are zero
 c) At $t=T_n$, displacement and velocity are zero
 d) Velocity at the supports is zero
- 7) Viscous damping is proportional to _____.
 a) Displacement
 b) Acceleration
 c) Amplitude
 d) Velocity

Seat No.	
-------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 3 & Q. 6 are compulsory. Attempt any two questions from the remaining of each section
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and state it clearly.
 4) Use of only IS 1893 is allowed.

Section – I

- Q.2** Describe direct and indirect effect of an earthquake. **09**
- Q.3** A SDOF system consists of a mass with weight 1800 N and spring of stiffness 14 KN/mm. By testing the system, it was found that a force of 450 N produces relative velocity of 0.3 m/s. Find: **10**
- a) Damping ratio
 - b) Damped frequency of vibration (ω_D)
 - c) Logarithmic decrement (δ)
 - d) The ratio of two successive amplitudes
- Q.4** Describe the force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **09**
- Q.5** Explain the concept of Duhamel's integral for damped systems. Derive its expression. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. four storied commercial building having plan dimensions as shown in Fig. 1 in zone III with following data. Determine the lateral forces and base shear. The all column sizes are 250 x 450 mm and beams sizes are 250 x 450 mm. The slab thickness is 140 mm and thickness of walls is 230 mm. The height of floor is 3.2 m and live load is 3.0 kN/m². IS 13920 will be used. The strata is hard. **10**

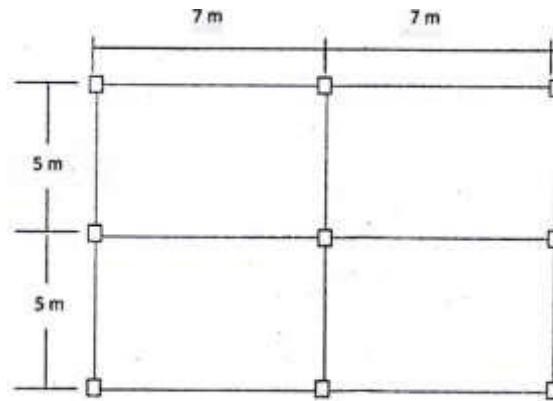


Figure 1 Q.6

- Q.7** Explain the planning aspects for earthquake resistant design of building. **09**
- Q.8** Explain the significance of ductility in earthquake resistant buildings. **09**
- Q.9** Describe the bands. At what levels in masonry building would you provide them? Give justification for each of them. **09**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. (Each question carries 2 marks) 14

- 1) To find out the desired solution of a governing equation of motion of 2 DOF systems, the initial conditions are _____.
 - a) Displacement at the supports is zero
 - b) At $t=0$, displacement and velocity are zero
 - c) At $t=T_n$, displacement and velocity are zero
 - d) Velocity at the supports is zero
- 2) Viscous damping is proportional to _____.
 - a) Displacement
 - b) Acceleration
 - c) Amplitude
 - d) Velocity
- 3) The structures having high natural period _____.
 - a) Attract less seismic forces and have large drift
 - b) Have large drift
 - c) Attract large seismic forces
 - d) Attract large seismic forces and have small drift
- 4) The effect of base isolation is _____.
 - a) To reduce the fundamental period
 - b) To nullify the period
 - c) To lengthen fundamental vibration period of structure
 - d) To reduce the mass participation
- 5) The definition of the soft storey mainly refers to _____.
 - a) Strength
 - b) Stiffness
 - c) Mass
 - d) Damping
- 6) The zone factors indicate reasonably estimated values of _____ in the respective zone.
 - a) Peak intensity of earthquake
 - b) Peak ground velocity
 - c) Peak ground acceleration
 - d) Peak ground displacement
- 7) Which of the following describes the buildup and release of stress during an earthquake?
 - a) Modified Mercalli Scale
 - b) Elastic Rebound Theory
 - c) Principle of Superposition
 - d) Richter scale

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 3 & Q. 6 are compulsory. Attempt any two questions from the remaining of each section
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and state it clearly.
 4) Use of only IS 1893 is allowed.

Section – I

- Q.2** Describe direct and indirect effect of an earthquake. **09**
- Q.3** A SDOF system consists of a mass with weight 1800 N and spring of stiffness 14 KN/mm. By testing the system, it was found that a force of 450 N produces relative velocity of 0.3 m/s. Find: **10**
- a) Damping ratio
 - b) Damped frequency of vibration (ω_D)
 - c) Logarithmic decrement (δ)
 - d) The ratio of two successive amplitudes
- Q.4** Describe the force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **09**
- Q.5** Explain the concept of Duhamel's integral for damped systems. Derive its expression. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. four storied commercial building having plan dimensions as shown in Fig. 1 in zone III with following data. Determine the lateral forces and base shear. The all column sizes are 250 x 450 mm and beams sizes are 250 x 450 mm. The slab thickness is 140 mm and thickness of walls is 230 mm. The height of floor is 3.2 m and live load is 3.0 kN/m². IS 13920 will be used. The strata is hard. **10**

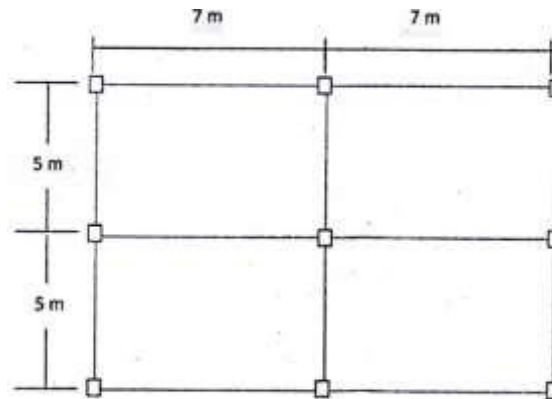


Figure 1 Q.6

- Q.7** Explain the planning aspects for earthquake resistant design of building. **09**
- Q.8** Explain the significance of ductility in earthquake resistant buildings. **09**
- Q.9** Describe the bands. At what levels in masonry building would you provide them? Give justification for each of them. **09**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Earthquake Engineering (BTN01702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 3 & Q. 6 are compulsory. Attempt any two questions from the remaining of each section
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and state it clearly.
 4) Use of only IS 1893 is allowed.

Section – I

- Q.2** Describe direct and indirect effect of an earthquake. **09**
- Q.3** A SDOF system consists of a mass with weight 1800 N and spring of stiffness 14 KN/mm. By testing the system, it was found that a force of 450 N produces relative velocity of 0.3 m/s. Find: **10**
 a) Damping ratio
 b) Damped frequency of vibration (ω_D)
 c) Logarithmic decrement (δ)
 d) The ratio of two successive amplitudes
- Q.4** Describe the force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **09**
- Q.5** Explain the concept of Duhamel's integral for damped systems. Derive its expression. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. four storied commercial building having plan dimensions as shown in Fig. 1 in zone III with following data. Determine the lateral forces and base shear. The all column sizes are 250 x 450 mm and beams sizes are 250 x 450 mm. The slab thickness is 140 mm and thickness of walls is 230 mm. The height of floor is 3.2 m and live load is 3.0 kN/m². IS 13920 will be used. The strata is hard. **10**

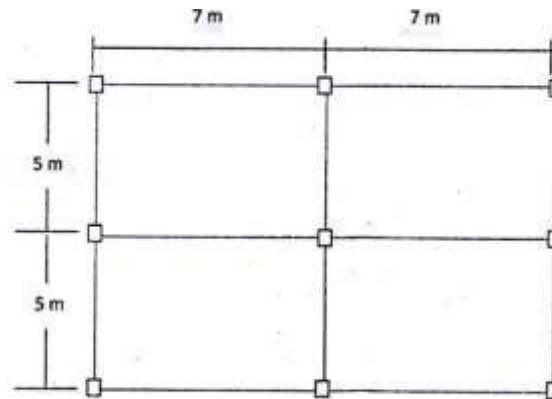


Figure 1 Q.6

- Q.7** Explain the planning aspects for earthquake resistant design of building. **09**
- Q.8** Explain the significance of ductility in earthquake resistant buildings. **09**
- Q.9** Describe the bands. At what levels in masonry building would you provide them? Give justification for each of them. **09**

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data whenever necessary & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) _____ cranes are used for handling loads over a large rectangular area in factories, power stations, shipyards and workshops.

a) Mobile	b) Derrick
c) Gantry	d) Hydraulic
- 2) _____ is used for removing materials from cofferdams.

a) Dragline	b) Back hoe
c) Clamshell	d) Crane
- 3) _____ are used to excavate below the ground on which the machine stands.

a) Hoes	b) Power Shovel
c) Trenchers	d) Rippers
- 4) _____ slack is an indication of 'on schedule' project.

a) Positive	b) Negative
c) Zero	d) Greater
- 5) In PERT, the distribution should have a _____ probability of reaching the optimistic time.

a) Big	b) Average
c) Small	d) Medium
- 6) In a CPM network, if earliest start time of an activity is 8 days and activity duration is 7 days, the value of earliest finish time of that activity will be _____ days.

a) 1	b) 15
c) 56	d) 23
- 7) If for an activity optimistic time is 7 days, pessimistic time is 13 days and most likely time is 10 days, its standard deviation will be _____.

a) 10	b) 3.28
c) 10.77	d) 1

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Consider a project shown in the Table.

12

Activity i-j	Duration in Days		
	Optimistic	Most Likely	Pessimistic
1-2	5	7	9
2-3	11	14	17
2-4	13	15	17
2-5	4	6	8
3-7	9	10	11
4-5	0	0	0
5-6	3	3	3
6-8	5	12	17
7-8	2	4	8

- Draw PERT Network.
- Find expected critical path.
- Find duration and variance of the project.

Q.3 Answer the following questions.

08

- What is WBS? Explain its importance in project management.
- Following activities pertains to a project. Determine critical path and Duration.

Activity	1 - 2	2 - 3	2 - 4	3 - 4	3 - 5	4 - 6	5 - 6
Duration (Days)	14	13	16	15	18	23	15

Q.4 Answer the following questions.

08

- Differentiate between CPM and PERT
- What is process and different steps followed in network updating?

Q.5 Answer the following questions.

08

- Write a short note on applications of software in construction industry.
- What is BIM? Also explain the output of BIM.

Section –II

- Q.6 Write Short notes on** **12**
- a) Bulldozers
 - b) Power shovel
 - c) Hot mix plant
- Q.7 Explain in details.** **08**
- a) Safety equipment's used on construction site
 - b) Causes of accidents on construction site
- Q.8 Explain in details.** **08**
- a) Write a short note on Mivan formwork.
 - b) Explain different components and elements used in prefabricated construction.
- Q.9 Explain in details.** **08**
- a) Write note on Dredging equipment and their types.
 - b) Explain the types and uses of diaphragm walls.

Seat No.	
----------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data whenever necessary & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) If the scheduled completion time of a project is 40 days and earliest expected completion time is 35 days, what will be the value of probability factor if the standard deviation is 2.87 days?

a) 1.74	b) 3.00
c) 2.74	d) 0.74
- 2) The area under the Beta distribution curve is divided into two equal parts by _____.

a) Most likely time	b) Optimistic time
c) Pessimistic time	d) Expected time
- 3) What is the process of incorporating changes and rescheduling or re planning called?

a) Resource Allocation	b) Resource smoothing
c) Resource leveling	d) Updating
- 4) The key functions of safety management system are,

1) Planning for safety	2) Organizing for safety
3) Scheduling for safety	4) Controlling for safety

a) 1, 3 and 4 are correct	b) 2, 3 and 4 are correct
c) 1, 2 and 3 are correct	d) 1, 2 and 4 are correct
- 5) Pick up the correct statement from the following: _____.

a) Programme Evaluation and Review Technique is event oriented
b) Programme Evaluation and Review Technique is not event oriented
c) Critical Path Method is event oriented
d) Critical Path Method is not event oriented

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Consider a project shown in the Table.

12

Activity i-j	Duration in Days		
	Optimistic	Most Likely	Pessimistic
1-2	5	7	9
2-3	11	14	17
2-4	13	15	17
2-5	4	6	8
3-7	9	10	11
4-5	0	0	0
5-6	3	3	3
6-8	5	12	17
7-8	2	4	8

- Draw PERT Network.
- Find expected critical path.
- Find duration and variance of the project.

Q.3 Answer the following questions.

08

- What is WBS? Explain its importance in project management.
- Following activities pertain to a project. Determine critical path and Duration.

Activity	1 - 2	2 - 3	2 - 4	3 - 4	3 - 5	4 - 6	5 - 6
Duration (Days)	14	13	16	15	18	23	15

Q.4 Answer the following questions.

08

- Differentiate between CPM and PERT
- What is process and different steps followed in network updating?

Q.5 Answer the following questions.

08

- Write a short note on applications of software in construction industry.
- What is BIM? Also explain the output of BIM.

Section –II

- Q.6 Write Short notes on** **12**
- a) Bulldozers
 - b) Power shovel
 - c) Hot mix plant
- Q.7 Explain in details.** **08**
- a) Safety equipment's used on construction site
 - b) Causes of accidents on construction site
- Q.8 Explain in details.** **08**
- a) Write a short note on Mivan formwork.
 - b) Explain different components and elements used in prefabricated construction.
- Q.9 Explain in details.** **08**
- a) Write note on Dredging equipment and their types.
 - b) Explain the types and uses of diaphragm walls.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data whenever necessary & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) The key functions of safety management system are,

1) Planning for safety	2) Organizing for safety
3) Scheduling for safety	4) Controlling for safety

 - a) 1, 3 and 4 are correct
 - b) 2, 3 and 4 are correct
 - c) 1, 2 and 3 are correct
 - d) 1, 2 and 4 are correct

- 2) Pick up the correct statement from the following: _____.
 - a) Programme Evaluation and Review Technique is event oriented
 - b) Programme Evaluation and Review Technique is not event oriented
 - c) Critical Path Method is event oriented
 - d) Critical Path Method is not event oriented

- 3) In the given figure, the network of a project represents.

 - a) Activity of an excavation of a footing
 - b) Activity of an excavation which starts at event No. 1 and ends at event No. 2
 - c) Activity of excavation which takes 8 units of time
 - d) None of these

- 4) If D is the duration, ES and EE are the earliest start and finish, LS and LF are latest start and latest finish time, then the following relation holds good _____.

a) $EF = ES + D$	b) $D = EF - ES$
c) $LE = LS + D$	d) All of the above

- 5) _____ cranes are used for handling loads over a large rectangular area in factories, power stations, shipyards and workshops.

a) Mobile	b) Derrick
c) Gantry	d) Hydraulic

- 6) _____ is used for removing materials from cofferdams.

a) Dragline	b) Back hoe
c) Clamshell	d) Crane

- 7) _____ are used to excavate below the ground on which the machine stands.
- a) Hoes
 - b) Power Shovel
 - c) Trenchers
 - d) Rippers
- 8) _____ slack is an indication of 'on schedule' project.
- a) Positive
 - b) Negative
 - c) Zero
 - d) Greater
- 9) In PERT, the distribution should have a _____ probability of reaching the optimistic time.
- a) Big
 - b) Average
 - c) Small
 - d) Medium
- 10) In a CPM network, if earliest start time of an activity is 8 days and activity duration is 7 days, the value of earliest finish time of that activity will be _____ days.
- a) 1
 - b) 15
 - c) 56
 - d) 23
- 11) If for an activity optimistic time is 7 days, pessimistic time is 13 days and most likely time is 10 days, its standard deviation will be _____.
- a) 10
 - b) 3.28
 - c) 10.77
 - d) 1
- 12) If the scheduled completion time of a project is 40 days and earliest expected completion time is 35 days, what will be the value of probability factor if the standard deviation is 2.87 days?
- a) 1.74
 - b) 3.00
 - c) 2.74
 - d) 0.74
- 13) The area under the Beta distribution curve is divided into two equal parts by _____.
- a) Most likely time
 - b) Optimistic time
 - c) Pessimistic time
 - d) Expected time
- 14) What is the process of incorporating changes and rescheduling or re planning called?
- a) Resource Allocation
 - b) Resource smoothing
 - c) Resource leveling
 - d) Updating

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Consider a project shown in the Table.

12

Activity i-j	Duration in Days		
	Optimistic	Most Likely	Pessimistic
1-2	5	7	9
2-3	11	14	17
2-4	13	15	17
2-5	4	6	8
3-7	9	10	11
4-5	0	0	0
5-6	3	3	3
6-8	5	12	17
7-8	2	4	8

- Draw PERT Network.
- Find expected critical path.
- Find duration and variance of the project.

Q.3 Answer the following questions.

08

- What is WBS? Explain its importance in project management.
- Following activities pertains to a project. Determine critical path and Duration.

Activity	1 - 2	2 - 3	2 - 4	3 - 4	3 - 5	4 - 6	5 - 6
Duration (Days)	14	13	16	15	18	23	15

Q.4 Answer the following questions.

08

- Differentiate between CPM and PERT
- What is process and different steps followed in network updating?

Q.5 Answer the following questions.

08

- Write a short note on applications of software in construction industry.
- What is BIM? Also explain the output of BIM.

Section –II

- Q.6 Write Short notes on** **12**
- a) Bulldozers
 - b) Power shovel
 - c) Hot mix plant
- Q.7 Explain in details.** **08**
- a) Safety equipment's used on construction site
 - b) Causes of accidents on construction site
- Q.8 Explain in details.** **08**
- a) Write a short note on Mivan formwork.
 - b) Explain different components and elements used in prefabricated construction.
- Q.9 Explain in details.** **08**
- a) Write note on Dredging equipment and their types.
 - b) Explain the types and uses of diaphragm walls.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data whenever necessary & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) In a CPM network, if earliest start time of an activity is 8 days and activity duration is 7 days, the value of earliest finish time of that activity will be _____ days.

a) 1	b) 15
c) 56	d) 23
- 2) If for an activity optimistic time is 7 days, pessimistic time is 13 days and most likely time is 10 days, its standard deviation will be _____.

a) 10	b) 3.28
c) 10.77	d) 1
- 3) If the scheduled completion time of a project is 40 days and earliest expected completion time is 35 days, what will be the value of probability factor if the standard deviation is 2.87 days?

a) 1.74	b) 3.00
c) 2.74	d) 0.74
- 4) The area under the Beta distribution curve is divided into two equal parts by _____.

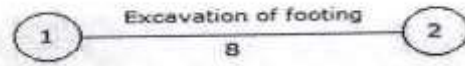
a) Most likely time	b) Optimistic time
c) Pessimistic time	d) Expected time
- 5) What is the process of incorporating changes and rescheduling or re planning called?

a) Resource Allocation	b) Resource smoothing
c) Resource leveling	d) Updating
- 6) The key functions of safety management system are,

1) Planning for safety	2) Organizing for safety
3) Scheduling for safety	4) Controlling for safety
a) 1, 3 and 4 are correct	b) 2, 3 and 4 are correct
c) 1, 2 and 3 are correct	d) 1, 2 and 4 are correct

- 7) Pick up the correct statement from the following: _____.
- Programme Evaluation and Review Technique is event oriented
 - Programme Evaluation and Review Technique is not event oriented
 - Critical Path Method is event oriented
 - Critical Path Method is not event oriented

- 8) In the given figure, the network of a project represents.



- Activity of an excavation of a footing
 - Activity of an excavation which starts at event No. 1 and ends at event No. 2
 - Activity of excavation which takes 8 units of time
 - None of these
- 9) If D is the duration, ES and EE are the earliest start and finish, LS and LF are latest start and latest finish time, then the following relation holds good _____.
- $EF = ES + D$
 - $D = EF - ES$
 - $LE = LS + D$
 - All of the above
- 10) _____ cranes are used for handling loads over a large rectangular area in factories, power stations, shipyards and workshops.
- Mobile
 - Derrick
 - Gantry
 - Hydraulic
- 11) _____ is used for removing materials from cofferdams.
- Dragline
 - Back hoe
 - Clamshell
 - Crane
- 12) _____ are used to excavate below the ground on which the machine stands.
- Hoes
 - Power Shovel
 - Trenchers
 - Rippers
- 13) _____ slack is an indication of 'on schedule' project.
- Positive
 - Negative
 - Zero
 - Greater
- 14) In PERT, the distribution should have a _____ probability of reaching the optimistic time.
- Big
 - Average
 - Small
 - Medium

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Construction Management and Practices (BTN01703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Consider a project shown in the Table.

12

Activity i-j	Duration in Days		
	Optimistic	Most Likely	Pessimistic
1-2	5	7	9
2-3	11	14	17
2-4	13	15	17
2-5	4	6	8
3-7	9	10	11
4-5	0	0	0
5-6	3	3	3
6-8	5	12	17
7-8	2	4	8

- Draw PERT Network.
- Find expected critical path.
- Find duration and variance of the project.

Q.3 Answer the following questions.

08

- What is WBS? Explain its importance in project management.
- Following activities pertains to a project. Determine critical path and Duration.

Activity	1 - 2	2 - 3	2 - 4	3 - 4	3 - 5	4 - 6	5 - 6
Duration (Days)	14	13	16	15	18	23	15

Q.4 Answer the following questions.

08

- Differentiate between CPM and PERT
- What is process and different steps followed in network updating?

Q.5 Answer the following questions.

08

- Write a short note on applications of software in construction industry.
- What is BIM? Also explain the output of BIM.

Section –II

- Q.6 Write Short notes on** **12**
- a) Bulldozers
 - b) Power shovel
 - c) Hot mix plant
- Q.7 Explain in details.** **08**
- a) Safety equipment's used on construction site
 - b) Causes of accidents on construction site
- Q.8 Explain in details.** **08**
- a) Write a short note on Mivan formwork.
 - b) Explain different components and elements used in prefabricated construction.
- Q.9 Explain in details.** **08**
- a) Write note on Dredging equipment and their types.
 - b) Explain the types and uses of diaphragm walls.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. **14**

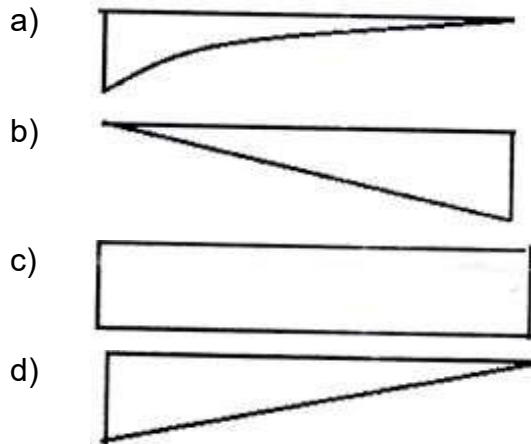
- 1) To draw qualitative ILD of indeterminate structure, which of the following concept is used. 01
- Mullers Breslau's Principle
 - Kani's Method
 - Unit Load Method
 - Castigliano's First energy theorem

- 2) Degree of kinematic indeterminacy for the beam shown in fig. 01



- 0
 - 2
 - 1
 - 3
- 3) In curved beams, normally the nature of stress distribution is _____. 01
- Linear
 - Circular
 - Parabolic
 - Hyperbolic
- 4) A beam curved in plan is designed for _____. 01
- bending moment and shear
 - bending moment and torsion
 - shear and torsion
 - bending moment, shear and torsion

5) ILD for the shear force at the support of the cantilever beam is _____. 02



6) Which of the following methods of structural analysis is a force method? 01

- a) three moment equation
- b) slope deflection method
- c) column analogy method
- d) moment distribution method

7) In the slope deflection equations, the deformations are considered to be caused by _____. 01

- a) Bending Moment
- b) Shear Force
- c) Axial Force
- d) Torsional moment

8) Degree of kinematic indeterminacy of pin jointed plane frame is given by _____. 01

- a) $2j-r$
- b) $3j-r$
- c) $2j+r$
- d) $j-2r$

9) Stiffness of the end A if the far end B is free is _____. 02



- a) EI/L
- b) $2EI/L$
- c) $3EI/L$
- d) 0

10) In the stiffness matrix of structural analysis, the quantity taken as redundant is _____. 01

- a) Both rotation and deflection
- b) Rotation
- c) Only Deflection
- d) none of the above

11) Select the correct statement 01

- a) Flexibility matrix is a square symmetrical matrix
- b) Stiffness matrix is a square symmetrical matrix
- c) Both (a) and (b)
- d) None of the above

12) The deformation of a spring produced by a unit load is called _____. 01

- a) Stiffness
- b) Flexibility
- c) Influence coefficient
- d) Unit strain

Seat No.	
----------	--

Set **P**

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)

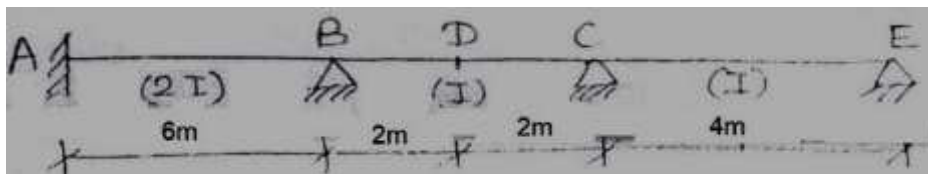
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

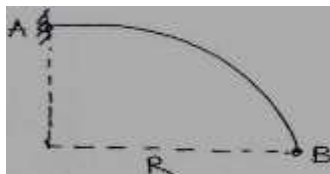
- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.

Section – I

- Q.2** Draw ILD for BM & SF at D for the continuous beam as shown in the figure. **08**



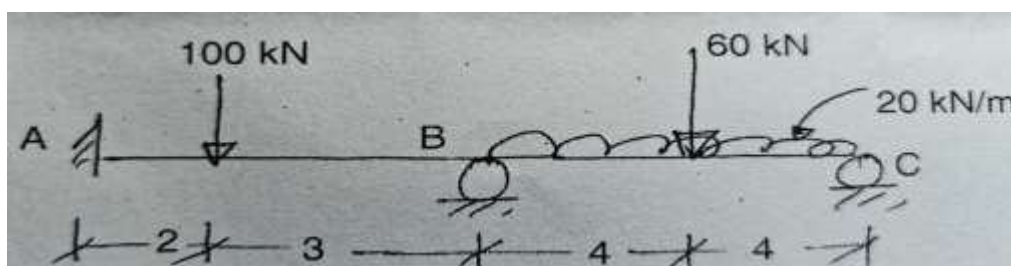
- Q.3** A quarter circular beams having uniform cross section is fixed at one end and free at other. It carries vertically downward load at free end. Draw SFD, BMD & TMD. Also determine vertical deflection at free end. **10**



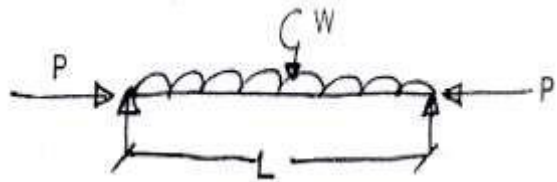
- Q.4** A long beam supported on elastic foundation is subjected to a concentrated clockwise moment 'Mo'. The beam is infinitely long on both the sides of concentrated moment. Draw SF and BM diagram. **10**
- Q.5** Draw SF, BM, deflection diagram for a semi-infinite beam on elastic foundation winged at one end and subjected to UDL of 'W' over entire length. **10**

Section – II

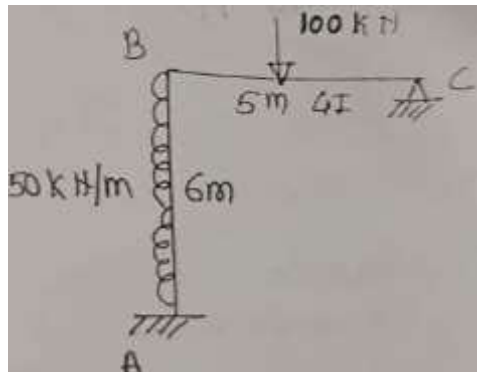
- Q.6** Analyse the beam shown in Fig. 4 by stiffness method. Support B sinks down by 10 mm. Take $EI = 45000 \text{ kNm}^2$. **08**



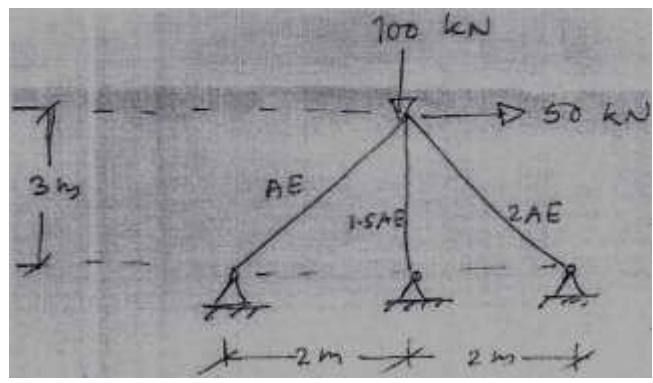
Q.7 A simply supported beam column is subjected to loading shown in Figure. Find maximum deflection and maximum bending moment in the beam column. **10**



Q.8 Analyze the frame shown in fig. by stiffness method. **10**



Q.9 Find the forces in all members of the truss shown in fig. by using member-oriented stiffness method. Assume axial rigidity of all members is constant. **10**



Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Structural Analysis (BTN01707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. **14**

- 1) Which of the following methods of structural analysis is a force method? 01
 - a) three moment equation
 - b) slope deflection method
 - c) column analogy method
 - d) moment distribution method
- 2) In the slope deflection equations, the deformations are considered to be caused by _____. 01
 - a) Bending Moment
 - b) Shear Force
 - c) Axial Force
 - d) Torsional moment
- 3) Degree of kinematic indeterminacy of pin jointed plane frame is given by _____. 01
 - a) $2j-r$
 - b) $3j-r$
 - c) $2j+r$
 - d) $j-2r$
- 4) Stiffness of the end A if the far end B is free is _____. 02



- a) EI/L
 - b) $2EI/L$
 - c) $3EI/L$
 - d) 0
- 5) In the stiffness matrix of structural analysis, the quantity taken as redundant is _____. 01
 - a) Both rotation and deflection
 - b) Rotation
 - c) Only Deflection
 - d) none of the above
 - 6) Select the correct statement 01
 - a) Flexibility matrix is a square symmetrical matrix
 - b) Stiffness matrix is a square symmetrical matrix
 - c) Both (a) and (b)
 - d) None of the above

Seat No.	
----------	--

Set **Q**

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)

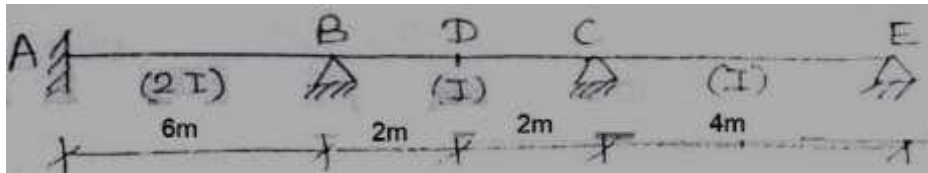
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

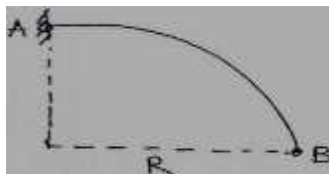
- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.

Section – I

- Q.2** Draw ILD for BM & SF at D for the continuous beam as shown in the figure. **08**



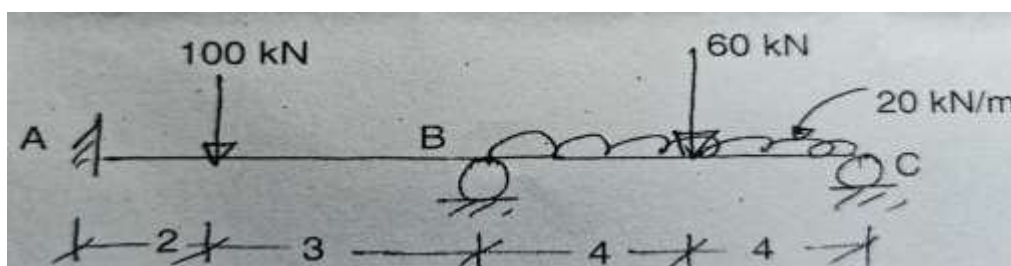
- Q.3** A quarter circular beams having uniform cross section is fixed at one end and free at other. It carries vertically downward load at free end. Draw SFD, BMD & TMD. Also determine vertical deflection at free end. **10**



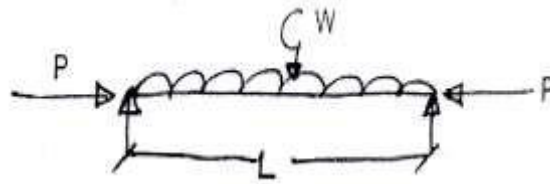
- Q.4** A long beam supported on elastic foundation is subjected to a concentrated clockwise moment 'Mo'. The beam is infinitely long on both the sides of concentrated moment. Draw SF and BM diagram. **10**
- Q.5** Draw SF, BM, deflection diagram for a semi-infinite beam on elastic foundation winged at one end and subjected to UDL of 'W' over entire length. **10**

Section – II

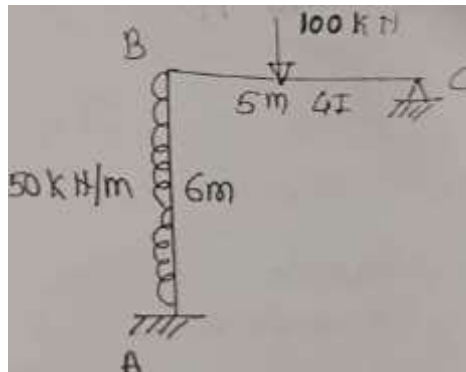
- Q.6** Analyse the beam shown in Fig. 4 by stiffness method. Support B sinks down by 10 mm. Take $EI = 45000 \text{ kNm}^2$. **08**



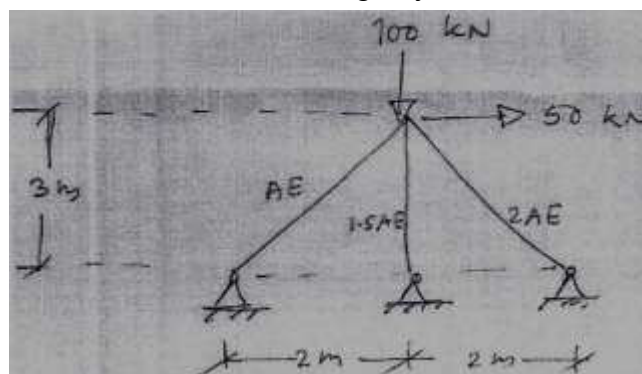
Q.7 A simply supported beam column is subjected to loading shown in Figure. Find maximum deflection and maximum bending moment in the beam column. **10**



Q.8 Analyze the frame shown in fig. by stiffness method. **10**



Q.9 Find the forces in all members of the truss shown in fig. by using member-oriented stiffness method. Assume axial rigidity of all members is constant. **10**



Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM



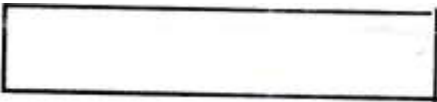

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 Choose the correct option from the following.** **14**
- 1) In curved beams, normally the nature of stress distribution is _____. 01
 - a) Linear
 - b) Circular
 - c) Parabolic
 - d) Hyperbolic
 - 2) A beam curved in plan is designed for _____. 01
 - a) bending moment and shear
 - b) bending moment and torsion
 - c) shear and torsion
 - d) bending moment, shear and torsion
 - 3) ILD for the shear force at the support of the cantilever beam is _____. 02
 - a) 
 - b) 
 - c) 
 - d) 
 - 4) Which of the following methods of structural analysis is a force method? 01
 - a) three moment equation
 - b) slope deflection method
 - c) column analogy method
 - d) moment distribution method
 - 5) In the slope deflection equations, the deformations are considered to be caused by _____. 01
 - a) Bending Moment
 - b) Shear Force
 - c) Axial Force
 - d) Torsional moment

Seat No.	
----------	--

Set **R**

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)

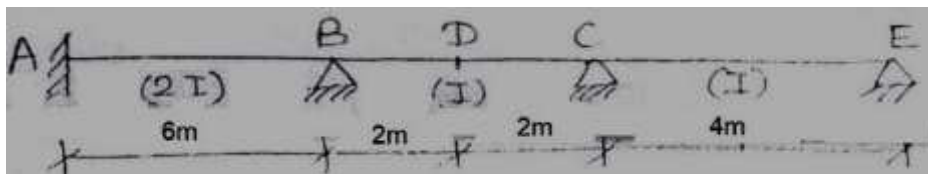
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

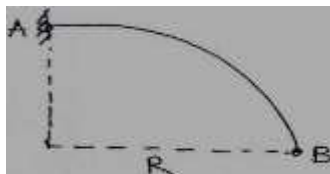
- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.

Section – I

- Q.2** Draw ILD for BM & SF at D for the continuous beam as shown in the figure. **08**



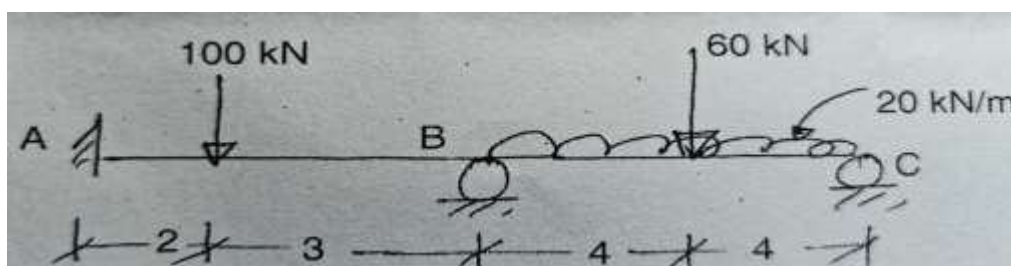
- Q.3** A quarter circular beams having uniform cross section is fixed at one end and free at other. It carries vertically downward load at free end. Draw SFD, BMD & TMD. Also determine vertical deflection at free end. **10**



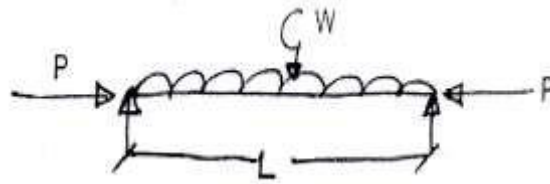
- Q.4** A long beam supported on elastic foundation is subjected to a concentrated clockwise moment 'Mo'. The beam is infinitely long on both the sides of concentrated moment. Draw SF and BM diagram. **10**
- Q.5** Draw SF, BM, deflection diagram for a semi-infinite beam on elastic foundation winged at one end and subjected to UDL of 'W' over entire length. **10**

Section – II

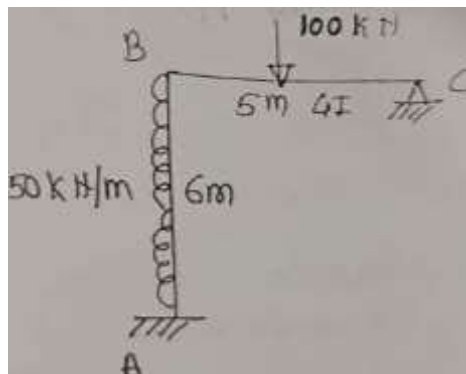
- Q.6** Analyse the beam shown in Fig. 4 by stiffness method. Support B sinks down by 10 mm. Take $EI = 45000 \text{ kNm}^2$. **08**



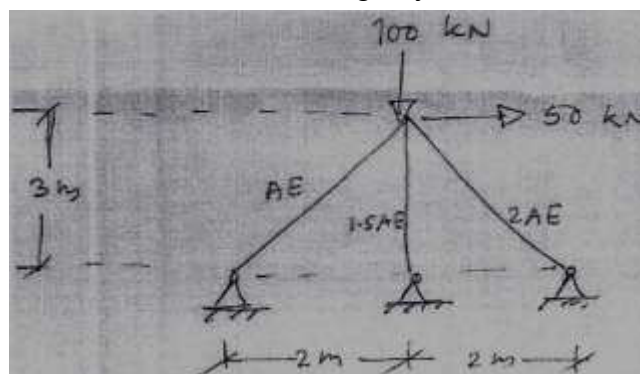
Q.7 A simply supported beam column is subjected to loading shown in Figure. Find maximum deflection and maximum bending moment in the beam column. **10**



Q.8 Analyze the frame shown in fig. by stiffness method. **10**



Q.9 Find the forces in all members of the truss shown in fig. by using member-oriented stiffness method. Assume axial rigidity of all members is constant. **10**



Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions


Duration: 30 Minutes

Marks: 14

- Q.1 Choose the correct option from the following.** **14**
- 1) Degree of kinematic indeterminacy of pin jointed plane frame is given by _____. 01

a) $2j-r$	b) $3j-r$
c) $2j+r$	d) $j-2r$

 - 2) Stiffness of the end A if the far end B is free is _____. 02



a) EI/L	b) $2EI/L$
c) $3EI/L$	d) 0

 - 3) In the stiffness matrix of structural analysis, the quantity taken as redundant is _____. 01

a) Both rotation and deflection	b) Rotation
c) Only Deflection	d) none of the above

 - 4) Select the correct statement 01

a) Flexibility matrix is a square symmetrical matrix	b) Stiffness matrix is a square symmetrical matrix
c) Both (a) and (b)	d) None of the above

 - 5) The deformation of a spring produced by a unit load is called _____. 01

a) Stiffness	b) Flexibility
c) Influence coefficient	d) Unit strain

 - 6) To draw qualitative ILD of indeterminate structure, which of the following concept is used. 01

a) Mullers Breslau's Principle	b) Kani's Method
c) Unit Load Method	d) Castigliano's First energy theorem

7) Degree of kinematic indeterminacy for the beam shown in fig. 01



- a) 0
- b) 2
- c) 1
- d) 3

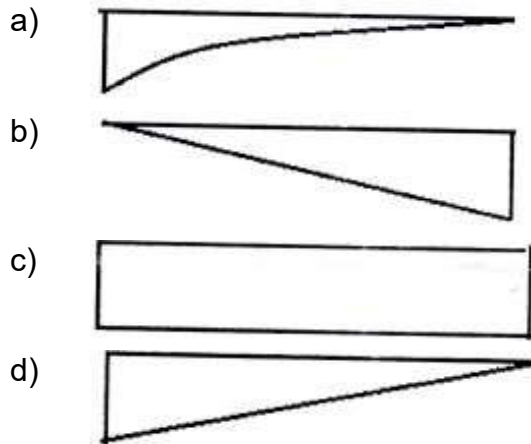
8) In curved beams, normally the nature of stress distribution is _____. 01

- a) Linear
- b) Circular
- c) Parabolic
- d) Hyperbolic

9) A beam curved in plan is designed for _____. 01

- a) bending moment and shear
- b) bending moment and torsion
- c) shear and torsion
- d) bending moment, shear and torsion

10) ILD for the shear force at the support of the cantilever beam is _____. 02



11) Which of the following methods of structural analysis is a force method? 01

- a) three moment equation
- b) slope deflection method
- c) column analogy method
- d) moment distribution method

12) In the slope deflection equations, the deformations are considered to be caused by _____. 01

- a) Bending Moment
- b) Shear Force
- c) Axial Force
- d) Torsional moment

Seat No.	
----------	--

Set **S**

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April - 2024
CIVIL ENGINEERING
Advanced Structural Analysis (BTN01707)

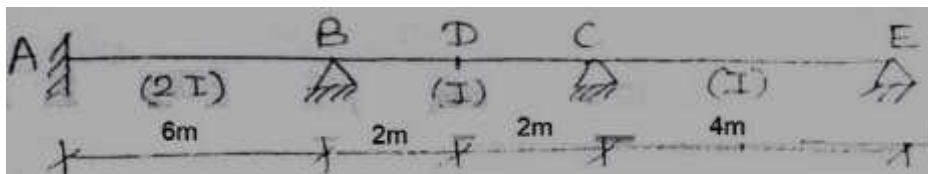
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

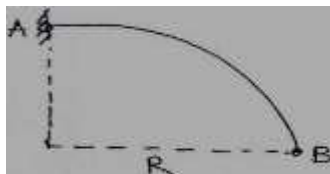
- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.

Section – I

- Q.2** Draw ILD for BM & SF at D for the continuous beam as shown in the figure. **08**



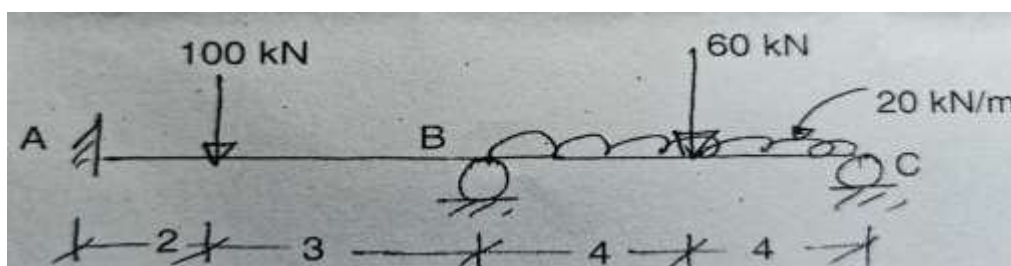
- Q.3** A quarter circular beams having uniform cross section is fixed at one end and free at other. It carries vertically downward load at free end. Draw SFD, BMD & TMD. Also determine vertical deflection at free end. **10**



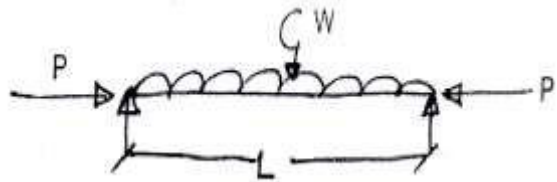
- Q.4** A long beam supported on elastic foundation is subjected to a concentrated clockwise moment 'Mo'. The beam is infinitely long on both the sides of concentrated moment. Draw SF and BM diagram. **10**
- Q.5** Draw SF, BM, deflection diagram for a semi-infinite beam on elastic foundation winged at one end and subjected to UDL of 'W' over entire length. **10**

Section – II

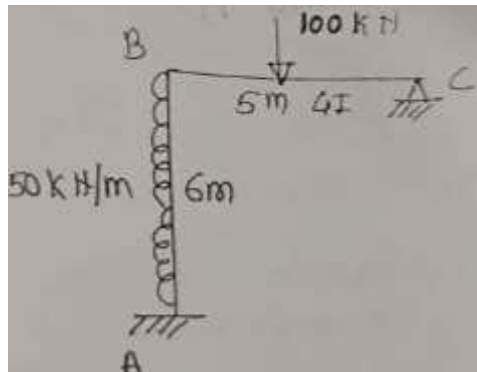
- Q.6** Analyse the beam shown in Fig. 4 by stiffness method. Support B sinks down by 10 mm. Take $EI = 45000 \text{ kNm}^2$. **08**



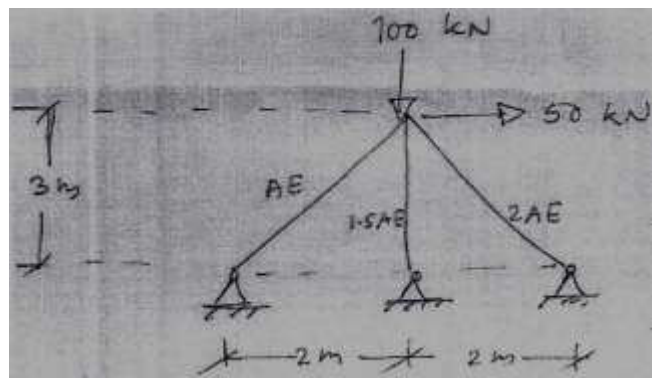
Q.7 A simply supported beam column is subjected to loading shown in Figure. Find maximum deflection and maximum bending moment in the beam column. **10**



Q.8 Analyze the frame shown in fig. by stiffness method. **10**



Q.9 Find the forces in all members of the truss shown in fig. by using member-oriented stiffness method. Assume axial rigidity of all members is constant. **10**



Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) What is traffic engineering?
 - a) Traffic engineering optimizes the performance and efficiency of the movement of people, goods, and transportation
 - b) Traffic engineering mainly deals with improving traffic performance, traffic studies, and traffic networks
 - c) The main goal of traffic engineering is to reduce highspeed collisions
 - d) All of the mentioned
- 2) Which is the most important objective of traffic engineering?
 - a) To provide a high speed road without any other priority
 - b) To increase the traffic
 - c) To reduce the accidents
 - d) To consider pedestrians as obstruction
- 3) Which of the following is the first stage in the function of the traffic engineering department?

a) Collection of data	b) Planning and design
c) Finance	d) Investigations
- 4) Which is the first stage in traffic engineering studies?

a) Spot speed studies	b) Traffic volume studies
c) Origin and destination studies	d) Speed and delay studies
- 5) What does "3-Es" of traffic engineering stand for?
 - a) Engineering, education and enthusiasm
 - b) Engineering, education and enforcement
 - c) Engineering, education and expulsion
 - d) Enforcement, empowerment and eradication
- 6) Which of the following is the traffic that is prepared based on 365 days of the year?

a) Annual average daily traffic	b) Average daily traffic
c) Average yearly traffic	d) Yearly traffic

- 7) Which of the following is the first phase of traffic regulation?
a) Traffic flow regulations b) General controls
c) Vehicle controls d) Driver controls
- 8) Which of the following traffic study determines total parking demand?
a) Parking studies b) Travel time studies
c) Accident studies d) Traffic volume study
- 9) What is the purpose of a Travel Time and Delay Study?
a) To evaluate the traffic stream
b) For survey data
c) To assess the quality of traffic movement
d) To assess the time taken to travel by various vehicles
- 10) Which of the following is not determined by traffic volume studies?
a) Number of vehicles b) Movement of vehicles
c) Design criteria d) Vehicle classification
- 11) Which of the following is not a parameter of traffic stream?
a) Speed b) PCU
c) Density of traffic d) Flow of traffic
- 12) Which of the following is not a factor affecting traffic capacity?
a) Traffic control devices b) Gradient
c) Lane width d) Lateral clearance
- 13) Fixed delay does not depend on which of the following factor?
a) Traffic signals b) Traffic volume
c) Markers d) Level crossing
- 14) Which of the following type of parking has areas exclusively allotted for parking at some distance away from the mainstream of traffic?
a) 30 degrees parking b) Right-angle parking
c) Off-street parking d) Parallel parking

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed.
3) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer any two questions. 14

- Explain in detail various components of road traffic.
- Explain in detail various traffic characteristics.
- Elaborate Sampling, adequacy of sample size and Application of sampling methods in traffic engineering studies.

Q.3 Answer any two questions. 14

- Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	9

Determine

- Upper and lower values or speed limits for regulation of mixed traffic flow.
 - Design speed for checking geometric design of highway elements.
- Write short note on.
 - Categories of traffic flow
 - Speed, flow and density relationship
 - Explain the following terms in detail.
 - Highway Capacity and level of service
 - Capacity of urban and rural roads
 - PCU concept

Section – II

- Q.4 Answer any two questions. 14**
- a) Explain in detail various types of traffic regulations in Traffic engineering studies.
 - b) Explain in detail necessity, requirements, advantages and disadvantages of One-Way Street.
 - c) Explain in detail various types of traffic control devices.
- Q.5 Answer any two questions. 14**
- a) Write down stepwise procedure for traffic signal design by IRC and Webster's method.
 - b) Explain concept, importance, objectives and scope of 'Intelligent Transportation System (ITS)'.
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) Which of the following traffic study determines total parking demand?
 - a) Parking studies
 - b) Travel time studies
 - c) Accident studies
 - d) Traffic volume study
- 2) What is the purpose of a Travel Time and Delay Study?
 - a) To evaluate the traffic stream
 - b) For survey data
 - c) To assess the quality of traffic movement
 - d) To assess the time taken to travel by various vehicles
- 3) Which of the following is not determined by traffic volume studies?
 - a) Number of vehicles
 - b) Movement of vehicles
 - c) Design criteria
 - d) Vehicle classification
- 4) Which of the following is not a parameter of traffic stream?
 - a) Speed
 - b) PCU
 - c) Density of traffic
 - d) Flow of traffic
- 5) Which of the following is not a factor affecting traffic capacity?
 - a) Traffic control devices
 - b) Gradient
 - c) Lane width
 - d) Lateral clearance
- 6) Fixed delay does not depend on which of the following factor?
 - a) Traffic signals
 - b) Traffic volume
 - c) Markers
 - d) Level crossing
- 7) Which of the following type of parking has areas exclusively allotted for parking at some distance away from the mainstream of traffic?
 - a) 30 degrees parking
 - b) Right-angle parking
 - c) Off-street parking
 - d) Parallel parking

- 8) What is traffic engineering?
- a) Traffic engineering optimizes the performance and efficiency of the movement of people, goods, and transportation
 - b) Traffic engineering mainly deals with improving traffic performance, traffic studies, and traffic networks
 - c) The main goal of traffic engineering is to reduce highspeed collisions
 - d) All of the mentioned
- 9) Which is the most important objective of traffic engineering?
- a) To provide a high speed road without any other priority
 - b) To increase the traffic
 - c) To reduce the accidents
 - d) To consider pedestrians as obstruction
- 10) Which of the following is the first stage in the function of the traffic engineering department?
- a) Collection of data
 - b) Planning and design
 - c) Finance
 - d) Investigations
- 11) Which is the first stage in traffic engineering studies?
- a) Spot speed studies
 - b) Traffic volume studies
 - c) Origin and destination studies
 - d) Speed and delay studies
- 12) What does “3-Es” of traffic engineering stand for?
- a) Engineering, education and enthusiasm
 - b) Engineering, education and enforcement
 - c) Engineering, education and expulsion
 - d) Enforcement, empowerment and eradication
- 13) Which of the following is the traffic that is prepared based on 365 days of the year?
- a) Annual average daily traffic
 - b) Average daily traffic
 - c) Average yearly traffic
 - d) Yearly traffic
- 14) Which of the following is the first phase of traffic regulation?
- a) Traffic flow regulations
 - b) General controls
 - c) Vehicle controls
 - d) Driver controls

Seat No.	
----------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed.
3) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer any two questions. 14

- Explain in detail various components of road traffic.
- Explain in detail various traffic characteristics.
- Elaborate Sampling, adequacy of sample size and Application of sampling methods in traffic engineering studies.

Q.3 Answer any two questions. 14

- Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	9

Determine

- Upper and lower values or speed limits for regulation of mixed traffic flow.
 - Design speed for checking geometric design of highway elements.
- Write short note on.
 - Categories of traffic flow
 - Speed, flow and density relationship
 - Explain the following terms in detail.
 - Highway Capacity and level of service
 - Capacity of urban and rural roads
 - PCU concept

Section – II

- Q.4 Answer any two questions. 14**
- a) Explain in detail various types of traffic regulations in Traffic engineering studies.
 - b) Explain in detail necessity, requirements, advantages and disadvantages of One-Way Street.
 - c) Explain in detail various types of traffic control devices.
- Q.5 Answer any two questions. 14**
- a) Write down stepwise procedure for traffic signal design by IRC and Webster's method.
 - b) Explain concept, importance, objectives and scope of 'Intelligent Transportation System (ITS)'.
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) Which of the following is not a parameter of traffic stream?

a) Speed	b) PCU
c) Density of traffic	d) Flow of traffic

- 2) Which of the following is not a factor affecting traffic capacity?

a) Traffic control devices	b) Gradient
c) Lane width	d) Lateral clearance

- 3) Fixed delay does not depend on which of the following factor?

a) Traffic signals	b) Traffic volume
c) Markers	d) Level crossing

- 4) Which of the following type of parking has areas exclusively allotted for parking at some distance away from the mainstream of traffic?

a) 30 degrees parking	b) Right-angle parking
c) Off-street parking	d) Parallel parking

- 5) What is traffic engineering?
 - a) Traffic engineering optimizes the performance and efficiency of the movement of people, goods, and transportation
 - b) Traffic engineering mainly deals with improving traffic performance, traffic studies, and traffic networks
 - c) The main goal of traffic engineering is to reduce highspeed collisions
 - d) All of the mentioned

- 6) Which is the most important objective of traffic engineering?
 - a) To provide a high speed road without any other priority
 - b) To increase the traffic
 - c) To reduce the accidents
 - d) To consider pedestrians as obstruction

- 7) Which of the following is the first stage in the function of the traffic engineering department?

a) Collection of data	b) Planning and design
c) Finance	d) Investigations

- 8) Which is the first stage in traffic engineering studies?
a) Spot speed studies b) Traffic volume studies
c) Origin and destination studies d) Speed and delay studies
- 9) What does “3-Es” of traffic engineering stand for?
a) Engineering, education and enthusiasm
b) Engineering, education and enforcement
c) Engineering, education and expulsion
d) Enforcement, empowerment and eradication
- 10) Which of the following is the traffic that is prepared based on 365 days of the year?
a) Annual average daily traffic b) Average daily traffic
c) Average yearly traffic d) Yearly traffic
- 11) Which of the following is the first phase of traffic regulation?
a) Traffic flow regulations b) General controls
c) Vehicle controls d) Driver controls
- 12) Which of the following traffic study determines total parking demand?
a) Parking studies b) Travel time studies
c) Accident studies d) Traffic volume study
- 13) What is the purpose of a Travel Time and Delay Study?
a) To evaluate the traffic stream
b) For survey data
c) To assess the quality of traffic movement
d) To assess the time taken to travel by various vehicles
- 14) Which of the following is not determined by traffic volume studies?
a) Number of vehicles b) Movement of vehicles
c) Design criteria d) Vehicle classification

Seat No.	
-------------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed.
3) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer any two questions. 14

- a) Explain in detail various components of road traffic.
- b) Explain in detail various traffic characteristics.
- c) Elaborate Sampling, adequacy of sample size and Application of sampling methods in traffic engineering studies.

Q.3 Answer any two questions. 14

- a) Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	9

Determine

- i) Upper and lower values or speed limits for regulation of mixed traffic flow.
 - ii) Design speed for checking geometric design of highway elements.
- b) Write short note on.
 - i) Categories of traffic flow
 - ii) Speed, flow and density relationship
 - c) Explain the following terms in detail.
 - i) Highway Capacity and level of service
 - ii) Capacity of urban and rural roads
 - iii) PCU concept

Section – II

- Q.4 Answer any two questions. 14**
- a) Explain in detail various types of traffic regulations in Traffic engineering studies.
 - b) Explain in detail necessity, requirements, advantages and disadvantages of One-Way Street.
 - c) Explain in detail various types of traffic control devices.
- Q.5 Answer any two questions. 14**
- a) Write down stepwise procedure for traffic signal design by IRC and Webster's method.
 - b) Explain concept, importance, objectives and scope of 'Intelligent Transportation System (ITS)'.
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) Which of the following is the traffic that is prepared based on 365 days of the year?

a) Annual average daily traffic	b) Average daily traffic
c) Average yearly traffic	d) Yearly traffic
- 2) Which of the following is the first phase of traffic regulation?

a) Traffic flow regulations	b) General controls
c) Vehicle controls	d) Driver controls
- 3) Which of the following traffic study determines total parking demand?

a) Parking studies	b) Travel time studies
c) Accident studies	d) Traffic volume study
- 4) What is the purpose of a Travel Time and Delay Study?

a) To evaluate the traffic stream
b) For survey data
c) To assess the quality of traffic movement
d) To assess the time taken to travel by various vehicles
- 5) Which of the following is not determined by traffic volume studies?

a) Number of vehicles	b) Movement of vehicles
c) Design criteria	d) Vehicle classification
- 6) Which of the following is not a parameter of traffic stream?

a) Speed	b) PCU
c) Density of traffic	d) Flow of traffic
- 7) Which of the following is not a factor affecting traffic capacity?

a) Traffic control devices	b) Gradient
c) Lane width	d) Lateral clearance
- 8) Fixed delay does not depend on which of the following factor?

a) Traffic signals	b) Traffic volume
c) Markers	d) Level crossing

- 9) Which of the following type of parking has areas exclusively allotted for parking at some distance away from the mainstream of traffic?
- a) 30 degrees parking
 - b) Right-angle parking
 - c) Off-street parking
 - d) Parallel parking
- 10) What is traffic engineering?
- a) Traffic engineering optimizes the performance and efficiency of the movement of people, goods, and transportation
 - b) Traffic engineering mainly deals with improving traffic performance, traffic studies, and traffic networks
 - c) The main goal of traffic engineering is to reduce highspeed collisions
 - d) All of the mentioned
- 11) Which is the most important objective of traffic engineering?
- a) To provide a high speed road without any other priority
 - b) To increase the traffic
 - c) To reduce the accidents
 - d) To consider pedestrians as obstruction
- 12) Which of the following is the first stage in the function of the traffic engineering department?
- a) Collection of data
 - b) Planning and design
 - c) Finance
 - d) Investigations
- 13) Which is the first stage in traffic engineering studies?
- a) Spot speed studies
 - b) Traffic volume studies
 - c) Origin and destination studies
 - d) Speed and delay studies
- 14) What does “3-Es” of traffic engineering stand for?
- a) Engineering, education and enthusiasm
 - b) Engineering, education and enforcement
 - c) Engineering, education and expulsion
 - d) Enforcement, empowerment and eradication

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (BTN01710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed.
3) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer any two questions. 14

- Explain in detail various components of road traffic.
- Explain in detail various traffic characteristics.
- Elaborate Sampling, adequacy of sample size and Application of sampling methods in traffic engineering studies.

Q.3 Answer any two questions. 14

- Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	9

Determine

- Upper and lower values or speed limits for regulation of mixed traffic flow.
 - Design speed for checking geometric design of highway elements.
- Write short note on.
 - Categories of traffic flow
 - Speed, flow and density relationship
 - Explain the following terms in detail.
 - Highway Capacity and level of service
 - Capacity of urban and rural roads
 - PCU concept

Section – II

- Q.4 Answer any two questions. 14**
- a) Explain in detail various types of traffic regulations in Traffic engineering studies.
 - b) Explain in detail necessity, requirements, advantages and disadvantages of One-Way Street.
 - c) Explain in detail various types of traffic control devices.
- Q.5 Answer any two questions. 14**
- a) Write down stepwise procedure for traffic signal design by IRC and Webster's method.
 - b) Explain concept, importance, objectives and scope of 'Intelligent Transportation System (ITS)'.
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. (Each question carries two marks.) **14**

- 1) What is the fundamental concept of entrepreneurship?
 - a) Profit maximization
 - b) Risk-taking and innovation
 - c) Market domination
 - d) Resource conservation
- 2) What does Entrepreneurship Development focus on primarily?
 - a) Economic stability
 - b) Individual skills enhancement
 - c) Government regulations
 - d) International trade
- 3) What is a common risk associated with entrepreneurship?
 - a) Stability risk
 - b) Competitive risk
 - c) Inertia risk
 - d) Conformity risk
- 4) Entrepreneurs can be classified based on: _____
 - a) Age
 - b) Gender
 - c) Motivation
 - d) All of the above
- 5) What is the primary focus of Women Entrepreneurship in India?
 - a) Industrial policy
 - b) Economic development
 - c) Government regulations
 - d) Rural youth empowerment
- 6) What is a common problem faced by Women Entrepreneurs in India?
 - a) Lack of government support
 - b) Economic stability
 - c) Limited access to resources
 - d) Gender equality
- 7) What does NABARD focus on in the context of Women Entrepreneurship?
 - a) Rural youth development
 - b) Skill enhancement programs
 - c) Financial support for women entrepreneurs
 - d) Urban development

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

Q.2 Solve any seven of the following. (4 marks each) 28

- a) Define the term "enterprise" and explain its significance in the business context.
- b) Explain the concept of entrepreneurial activity and its importance in the business ecosystem.
- c) Explore the various types of entrepreneurs based on the nature of their businesses and provide examples for each type.
- d) Explore common problems faced by entrepreneurs and propose potential solutions to address these challenges.
- e) Define creativity and innovation in the entrepreneurial context and discuss how these elements contribute to the success of entrepreneurial ventures.
- f) Write a note on Women Entrepreneur in India.
- g) Define women entrepreneurship and highlight its significance in the Indian context.
- h) Describe the training initiatives for rural youth aimed at promoting self-employment.
- i) Explore the specialized institutions supporting entrepreneurs and their unique contributions to specific sectors or industries.
- j) Explain the importance of business plans in securing financial support for entrepreneurs and the key elements that should be included in a comprehensive business plan.

Section – II

Q.3 Solve any seven of the following. (4 Marks each) 28

- a) Explain the concept of the estimation of the cost of a project and its significance in financial analysis.
- b) Differentiate between working capital and fixed capital, emphasizing their roles in financial management.
- c) Briefly describe the break-even analysis and its application in financial decision making.
- d) Explain the factors influencing the commercial viability of a project, discussing market analysis, competition, and potential challenges.
- e) Define project profiles and their role in project documentation.
- f) Explain the concept of risk in business, discussing the types of risks and the importance of risk analysis in decision-making.

- g)** Explore the concept of sales and its role in achieving organizational objectives, discussing the various sales channels and techniques.
- h)** Differentiate between goals and objectives in the context of business planning.
- i)** Explain the significance of the technical viability assessment in project report.
- j)** Explain the methods used for the assessment of working results and their role in financial decision-making.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. (Each question carries two marks.) **14**

- 1) What is the primary focus of Women Entrepreneurship in India?
 - a) Industrial policy
 - b) Economic development
 - c) Government regulations
 - d) Rural youth empowerment
- 2) What is a common problem faced by Women Entrepreneurs in India?
 - a) Lack of government support
 - b) Economic stability
 - c) Limited access to resources
 - d) Gender equality
- 3) What does NABARD focus on in the context of Women Entrepreneurship?
 - a) Rural youth development
 - b) Skill enhancement programs
 - c) Financial support for women entrepreneurs
 - d) Urban development
- 4) What is the fundamental concept of entrepreneurship?
 - a) Profit maximization
 - b) Risk-taking and innovation
 - c) Market domination
 - d) Resource conservation
- 5) What does Entrepreneurship Development focus on primarily?
 - a) Economic stability
 - b) Individual skills enhancement
 - c) Government regulations
 - d) International trade
- 6) What is a common risk associated with entrepreneurship?
 - a) Stability risk
 - b) Competitive risk
 - c) Inertia risk
 - d) Conformity risk
- 7) Entrepreneurs can be classified based on: _____
 - a) Age
 - b) Gender
 - c) Motivation
 - d) All of the above

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

Q.2 Solve any seven of the following. (4 marks each) 28

- a) Define the term "enterprise" and explain its significance in the business context.
- b) Explain the concept of entrepreneurial activity and its importance in the business ecosystem.
- c) Explore the various types of entrepreneurs based on the nature of their businesses and provide examples for each type.
- d) Explore common problems faced by entrepreneurs and propose potential solutions to address these challenges.
- e) Define creativity and innovation in the entrepreneurial context and discuss how these elements contribute to the success of entrepreneurial ventures.
- f) Write a note on Women Entrepreneur in India.
- g) Define women entrepreneurship and highlight its significance in the Indian context.
- h) Describe the training initiatives for rural youth aimed at promoting self-employment.
- i) Explore the specialized institutions supporting entrepreneurs and their unique contributions to specific sectors or industries.
- j) Explain the importance of business plans in securing financial support for entrepreneurs and the key elements that should be included in a comprehensive business plan.

Section – II

Q.3 Solve any seven of the following. (4 Marks each) 28

- a) Explain the concept of the estimation of the cost of a project and its significance in financial analysis.
- b) Differentiate between working capital and fixed capital, emphasizing their roles in financial management.
- c) Briefly describe the break-even analysis and its application in financial decision making.
- d) Explain the factors influencing the commercial viability of a project, discussing market analysis, competition, and potential challenges.
- e) Define project profiles and their role in project documentation.
- f) Explain the concept of risk in business, discussing the types of risks and the importance of risk analysis in decision-making.

- g)** Explore the concept of sales and its role in achieving organizational objectives, discussing the various sales channels and techniques.
- h)** Differentiate between goals and objectives in the context of business planning.
- i)** Explain the significance of the technical viability assessment in project report.
- j)** Explain the methods used for the assessment of working results and their role in financial decision-making.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Use of non-programmable calculator is allowed.

Section – I

Q.2 Solve any seven of the following. (4 marks each) 28

- a) Define the term "enterprise" and explain its significance in the business context.
- b) Explain the concept of entrepreneurial activity and its importance in the business ecosystem.
- c) Explore the various types of entrepreneurs based on the nature of their businesses and provide examples for each type.
- d) Explore common problems faced by entrepreneurs and propose potential solutions to address these challenges.
- e) Define creativity and innovation in the entrepreneurial context and discuss how these elements contribute to the success of entrepreneurial ventures.
- f) Write a note on Women Entrepreneur in India.
- g) Define women entrepreneurship and highlight its significance in the Indian context.
- h) Describe the training initiatives for rural youth aimed at promoting self-employment.
- i) Explore the specialized institutions supporting entrepreneurs and their unique contributions to specific sectors or industries.
- j) Explain the importance of business plans in securing financial support for entrepreneurs and the key elements that should be included in a comprehensive business plan.

Section – II

Q.3 Solve any seven of the following. (4 Marks each) 28

- a) Explain the concept of the estimation of the cost of a project and its significance in financial analysis.
- b) Differentiate between working capital and fixed capital, emphasizing their roles in financial management.
- c) Briefly describe the break-even analysis and its application in financial decision making.
- d) Explain the factors influencing the commercial viability of a project, discussing market analysis, competition, and potential challenges.
- e) Define project profiles and their role in project documentation.
- f) Explain the concept of risk in business, discussing the types of risks and the importance of risk analysis in decision-making.

- g)** Explore the concept of sales and its role in achieving organizational objectives, discussing the various sales channels and techniques.
- h)** Differentiate between goals and objectives in the context of business planning.
- i)** Explain the significance of the technical viability assessment in project report.
- j)** Explain the methods used for the assessment of working results and their role in financial decision-making.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. (Each question carries two marks.) **14**

- 1) What does NABARD focus on in the context of Women Entrepreneurship?
 - a) Rural youth development
 - b) Skill enhancement programs
 - c) Financial support for women entrepreneurs
 - d) Urban development
- 2) What is the fundamental concept of entrepreneurship?
 - a) Profit maximization
 - b) Risk-taking and innovation
 - c) Market domination
 - d) Resource conservation
- 3) What does Entrepreneurship Development focus on primarily?
 - a) Economic stability
 - b) Individual skills enhancement
 - c) Government regulations
 - d) International trade
- 4) What is a common risk associated with entrepreneurship?
 - a) Stability risk
 - b) Competitive risk
 - c) Inertia risk
 - d) Conformity risk
- 5) Entrepreneurs can be classified based on: _____
 - a) Age
 - b) Gender
 - c) Motivation
 - d) All of the above
- 6) What is the primary focus of Women Entrepreneurship in India?
 - a) Industrial policy
 - b) Economic development
 - c) Government regulations
 - d) Rural youth empowerment
- 7) What is a common problem faced by Women Entrepreneurs in India?
 - a) Lack of government support
 - b) Economic stability
 - c) Limited access to resources
 - d) Gender equality

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (BTN01713)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever necessary and mention it clearly.
4) Use of non-programmable calculator is allowed.

Section – I

Q.2 Solve any seven of the following. (4 marks each) 28

- a) Define the term "enterprise" and explain its significance in the business context.
- b) Explain the concept of entrepreneurial activity and its importance in the business ecosystem.
- c) Explore the various types of entrepreneurs based on the nature of their businesses and provide examples for each type.
- d) Explore common problems faced by entrepreneurs and propose potential solutions to address these challenges.
- e) Define creativity and innovation in the entrepreneurial context and discuss how these elements contribute to the success of entrepreneurial ventures.
- f) Write a note on Women Entrepreneur in India.
- g) Define women entrepreneurship and highlight its significance in the Indian context.
- h) Describe the training initiatives for rural youth aimed at promoting self-employment.
- i) Explore the specialized institutions supporting entrepreneurs and their unique contributions to specific sectors or industries.
- j) Explain the importance of business plans in securing financial support for entrepreneurs and the key elements that should be included in a comprehensive business plan.

Section – II

Q.3 Solve any seven of the following. (4 Marks each) 28

- a) Explain the concept of the estimation of the cost of a project and its significance in financial analysis.
- b) Differentiate between working capital and fixed capital, emphasizing their roles in financial management.
- c) Briefly describe the break-even analysis and its application in financial decision making.
- d) Explain the factors influencing the commercial viability of a project, discussing market analysis, competition, and potential challenges.
- e) Define project profiles and their role in project documentation.
- f) Explain the concept of risk in business, discussing the types of risks and the importance of risk analysis in decision-making.

- g)** Explore the concept of sales and its role in achieving organizational objectives, discussing the various sales channels and techniques.
- h)** Differentiate between goals and objectives in the context of business planning.
- i)** Explain the significance of the technical viability assessment in project report.
- j)** Explain the methods used for the assessment of working results and their role in financial decision-making.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Optimization Techniques (BTN01714)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any three.

24

- a) Using Graphical method, Solve

$$\text{Maximize } Z = 10X_1 + 8X_2$$

$$\text{Subject to, } 2X_1 + X_2 \leq 40;$$

$$2X_1 + 3X_2 \leq 80;$$

$$0 \leq X_1;$$

$$0 \leq X_2;$$

- b) Four different jobs can be done on 4 different machines. The set-up and takedown time cost are assumed to be prohibitively high for changeovers. The matrix below gives the cost in rupees for producing job i on machine j.

		Machines			
		M1	M2	M3	M4
Jobs	J1	51	77	49	55
	J2	32	34	59	68
	J3	37	44	70	54
	J4	55	55	58	55

- c) Solve the following game.

		Player B				
		Player A	3	0	6	-1
-1	5		-2	2	1	

- d) Discuss in detail 'Planning' & 'Organising' as a Functions of Management.
 e) Explain the Waiting Line Theory with all its characteristics to single channel waiting line. Discuss with the graph showing waiting time cost, Cost of Services & Total Expected cost.

Q.3 Write a note on any one.

04

- a) Advantages of Simulation Technique
 b) Theory of Games

Section – II

Q.4 Answer any three.

24

- a) What is Break-Even Analysis? Explain with an example. How it is important for material management?
- b) Find The A-Class, B-Class And C-Class Material, for following and draw the Graph.

Item ID	Annual Consumption in unit	Unit Price in Rs
1	700	50
2	2400	30
3	150	100
4	60	220
5	3800	15
6	4000	5
7	6000	2
8	300	35
9	30	80
10	2900	4

- c) A construction company requires 4000 bags of cement per month. Price of each cement bag has 100. If Inventory carrying cost = 20% & procurement costs per order = 50 ₹. Find EOQ & No. of orders company should place.
- d) The following are the mean length & ranges of lengths of finished product from 10 samples of size 5. The specification limits for length are 200 ± 5 cm. Construct \bar{x} and R chart and examine whether the process is under control & state your explanation.

Sample no.	1	2	3	4	5	6	7	8	9	10
Mean \bar{x}	201	198	202	200	203	204	199	196	199	201
Range R	5	0	7	3	4	7	2	8	5	6

- e) Write a note on the ERP system.

Q.5 Write a note on any one.

04

- a) Application of Dynamic Programming
- b) Genetic Algorithm

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Optimization Techniques (BTN01714)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) _____ of a function is a value which is higher than all the values of the function.
 - a) Global Minima
 - b) Global Maxima
 - c) Local Minima
 - d) Local Maxima
- 2) EMV technique is used for decision under _____.
 - a) Uncertainty
 - b) Certainty
 - c) Risk
 - d) All the above
- 3) The cost of keeping items in inventory stock is called _____.
 - a) Carrying Cost
 - b) Shortage cost
 - c) Procurement cost
 - d) none of this
- 4) Economic Order Quantity model helps to find _____.
 - a) Optimum size of order
 - b) Annual Requirement of Units
 - c) Both of these
 - d) None of these
- 5) At the Break-Even Point _____.
 - a) Profit > Loss
 - b) Profit < Loss
 - c) Profit = Loss
 - d) None of these
- 6) Hungarian method is suitable for _____.
 - a) Assignment Problem
 - b) Transportation Problem
 - c) Graphical Method
 - d) Game Theory
- 7) Optimization Means _____.
 - a) Maximization
 - b) Minimization
 - c) Minimization or Maximization
 - d) Mean of Minimization & Maximization
- 8) The dual of the dual is _____.
 - a) Attributes
 - b) Primal
 - c) Dual
 - d) None of these
- 9) Military organization is _____.
 - a) Line and Staff
 - b) Matrix
 - c) Line
 - d) Functional

- 10) Short Route problem is best example of _____.
a) Graphical Method b) Integer Programming
c) Dynamic Programming d) Game Theory
- 11) If rate of customer arrival is 15 person per hour and rate of service is 20 persons per hour then probability of system being idle is _____.
a) 0.5 b) 0.75
c) 1.0 d) 0.25
- 12) An LPP is said to be _____ if has no solution that satisfies all the constraints.
a) Feasible b) Bounded
c) Infeasible d) None of these
- 13) The topmost row in the simplex matrix is called _____.
a) Variable Row b) Objective Row
c) Constraint Row d) None
- 14) Games without a saddle point requires players to play _____.
a) Pure Strategy b) Mixed Strategy
c) Market Strategy d) None

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Optimization Techniques (BTN01714)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any three.

24

- a) Using Graphical method, Solve

$$\text{Maximize } Z = 10X_1 + 8X_2$$

$$\text{Subject to, } 2X_1 + X_2 \leq 40;$$

$$2X_1 + 3X_2 \leq 80;$$

$$0 \leq X_1;$$

$$0 \leq X_2;$$

- b) Four different jobs can be done on 4 different machines. The set-up and takedown time cost are assumed to be prohibitively high for changeovers. The matrix below gives the cost in rupees for producing job i on machine j.

		Machines			
		M1	M2	M3	M4
Jobs	J1	51	77	49	55
	J2	32	34	59	68
	J3	37	44	70	54
	J4	55	55	58	55

- c) Solve the following game.

		Player B				
		Player A	3	0	6	-1
-1	5		-2	2	1	

- d) Discuss in detail 'Planning' & 'Organising' as a Functions of Management.
 e) Explain the Waiting Line Theory with all its characteristics to single channel waiting line. Discuss with the graph showing waiting time cost, Cost of Services & Total Expected cost.

Q.3 Write a note on any one.

04

- a) Advantages of Simulation Technique
 b) Theory of Games

Section – II

Q.4 Answer any three.

24

- a) What is Break-Even Analysis? Explain with an example. How it is important for material management?
- b) Find The A-Class, B-Class And C-Class Material, for following and draw the Graph.

Item ID	Annual Consumption in unit	Unit Price in Rs
1	700	50
2	2400	30
3	150	100
4	60	220
5	3800	15
6	4000	5
7	6000	2
8	300	35
9	30	80
10	2900	4

- c) A construction company requires 4000 bags of cement per month. Price of each cement bag has 100. If Inventory carrying cost = 20% & procurement costs per order = 50 ₹. Find EOQ & No. of orders company should place.
- d) The following are the mean length & ranges of lengths of finished product from 10 samples of size 5. The specification limits for length are 200 ± 5 cm. Construct \bar{x} and R chart and examine whether the process is under control & state your explanation.

Sample no.	1	2	3	4	5	6	7	8	9	10
Mean \bar{x}	201	198	202	200	203	204	199	196	199	201
Range R	5	0	7	3	4	7	2	8	5	6

- e) Write a note on the ERP system.

Q.5 Write a note on any one.

04

- a) Application of Dynamic Programming
- b) Genetic Algorithm

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Optimization Techniques (BTN01714)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) Economic Order Quantity model helps to find _____.
 a) Optimum size of order b) Annual Requirement of Units
 c) Both of these d) None of these
- 2) At the Break-Even Point _____.
 a) Profit > Loss b) Profit < Loss
 c) Profit = Loss d) None of these
- 3) Hungarian method is suitable for _____.
 a) Assignment Problem b) Transportation Problem
 c) Graphical Method d) Game Theory
- 4) Optimization Means _____.
 a) Maximization
 b) Minimization
 c) Minimization or Maximization
 d) Mean of Minimization & Maximization
- 5) The dual of the dual is _____.
 a) Attributes b) Primal
 c) Dual d) None of these
- 6) Military organization is _____.
 a) Line and Staff b) Matrix
 c) Line d) Functional
- 7) Short Route problem is best example of _____.
 a) Graphical Method b) Integer Programming
 c) Dynamic Programming d) Game Theory
- 8) If rate of customer arrival is 15 person per hour and rate of service is 20 persons per hour then probability of system being idle is _____.
 a) 0.5 b) 0.75
 c) 1.0 d) 0.25
- 9) An LPP is said to be _____ if has no solution that satisfies all the constraints.
 a) Feasible b) Bounded
 c) Infeasible d) None of these

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Optimization Techniques (BTN01714)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any three.

24

- a) Using Graphical method, Solve

$$\text{Maximize } Z = 10X_1 + 8X_2$$

$$\text{Subject to, } 2X_1 + X_2 \leq 40;$$

$$2X_1 + 3X_2 \leq 80;$$

$$0 \leq X_1;$$

$$0 \leq X_2;$$

- b) Four different jobs can be done on 4 different machines. The set-up and takedown time cost are assumed to be prohibitively high for changeovers. The matrix below gives the cost in rupees for producing job i on machine j.

		Machines			
		M1	M2	M3	M4
Jobs	J1	51	77	49	55
	J2	32	34	59	68
	J3	37	44	70	54
	J4	55	55	58	55

- c) Solve the following game.

		Player B				
		Player A	3	0	6	-1
-1	5		-2	2	1	

- d) Discuss in detail 'Planning' & 'Organising' as a Functions of Management.
 e) Explain the Waiting Line Theory with all its characteristics to single channel waiting line. Discuss with the graph showing waiting time cost, Cost of Services & Total Expected cost.

Q.3 Write a note on any one.

04

- a) Advantages of Simulation Technique
 b) Theory of Games

Section – II

Q.4 Answer any three.

24

- a) What is Break-Even Analysis? Explain with an example. How it is important for material management?
- b) Find The A-Class, B-Class And C-Class Material, for following and draw the Graph.

Item ID	Annual Consumption in unit	Unit Price in Rs
1	700	50
2	2400	30
3	150	100
4	60	220
5	3800	15
6	4000	5
7	6000	2
8	300	35
9	30	80
10	2900	4

- c) A construction company requires 4000 bags of cement per month. Price of each cement bag has 100. If Inventory carrying cost = 20% & procurement costs per order = 50 ₹. Find EOQ & No. of orders company should place.
- d) The following are the mean length & ranges of lengths of finished product from 10 samples of size 5. The specification limits for length are 200 ± 5 cm. Construct \bar{x} and R chart and examine whether the process is under control & state your explanation.

Sample no.	1	2	3	4	5	6	7	8	9	10
Mean \bar{x}	201	198	202	200	203	204	199	196	199	201
Range R	5	0	7	3	4	7	2	8	5	6

- e) Write a note on the ERP system.

Q.5 Write a note on any one.

04

- a) Application of Dynamic Programming
- b) Genetic Algorithm

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Optimization Techniques (BTN01714)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any three.

24

- a) Using Graphical method, Solve

$$\text{Maximize } Z = 10X_1 + 8X_2$$

$$\text{Subject to, } 2X_1 + X_2 \leq 40;$$

$$2X_1 + 3X_2 \leq 80;$$

$$0 \leq X_1;$$

$$0 \leq X_2;$$

- b) Four different jobs can be done on 4 different machines. The set-up and takedown time cost are assumed to be prohibitively high for changeovers. The matrix below gives the cost in rupees for producing job i on machine j.

		Machines			
		M1	M2	M3	M4
Jobs	J1	51	77	49	55
	J2	32	34	59	68
	J3	37	44	70	54
	J4	55	55	58	55

- c) Solve the following game.

		Player B				
		Player A	3	0	6	-1
-1	5		-2	2	1	

- d) Discuss in detail 'Planning' & 'Organising' as a Functions of Management.
 e) Explain the Waiting Line Theory with all its characteristics to single channel waiting line. Discuss with the graph showing waiting time cost, Cost of Services & Total Expected cost.

Q.3 Write a note on any one.

04

- a) Advantages of Simulation Technique
 b) Theory of Games

Section – II

Q.4 Answer any three.

24

- a) What is Break-Even Analysis? Explain with an example. How it is important for material management?
- b) Find The A-Class, B-Class And C-Class Material, for following and draw the Graph.

Item ID	Annual Consumption in unit	Unit Price in Rs
1	700	50
2	2400	30
3	150	100
4	60	220
5	3800	15
6	4000	5
7	6000	2
8	300	35
9	30	80
10	2900	4

- c) A construction company requires 4000 bags of cement per month. Price of each cement bag has 100. If Inventory carrying cost = 20% & procurement costs per order = 50 ₹. Find EOQ & No. of orders company should place.
- d) The following are the mean length & ranges of lengths of finished product from 10 samples of size 5. The specification limits for length are 200 ± 5 cm. Construct \bar{x} and R chart and examine whether the process is under control & state your explanation.

Sample no.	1	2	3	4	5	6	7	8	9	10
Mean \bar{x}	201	198	202	200	203	204	199	196	199	201
Range R	5	0	7	3	4	7	2	8	5	6

- e) Write a note on the ERP system.

Q.5 Write a note on any one.

04

- a) Application of Dynamic Programming
- b) Genetic Algorithm

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary.
 - 5) Draw neat labels diagrams whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Hydraulic energy is converted into another form of energy by hydraulic machines. What form of energy is that?

a) Mechanical Energy	b) Electrical Energy
c) Nuclear Energy	d) Elastic Energy
- 2) Which principle is used in Hydraulic Turbines?

a) Faraday law	b) Newton's second law
c) Charles law	d) Braggs law
- 3) In hydraulic turbines, inlet energy is greater than the outlet energy.

a) True	b) False
---------	----------
- 4) _____ is the electric power obtained from the energy of the water.

a) Roto dynamic power	b) Thermal power
c) Nuclear power	d) Hydroelectric power
- 5) A hydel power plant of run-off-river type should be provided with pondage so that the _____.

a) film capacity of the plant is increased
b) operating head is controlled
c) pressure inside the turbine casing remains constant
d) kinetic energy of the running water is fully utilized
- 6) In India, pumped storage power plant _____.

a) does not exist at all	b) exists is Rajasthan alone
c) exists in Kadampurai	d) exists in Haryana
- 7) What is the efficiency of the simple elbow type draft tube?

a) 10	b) 30
c) 60	d) 90
- 8) Run of river plant is one which _____.

a) has a limited pondage	b) has no pondage at all
c) is high head plant	d) is a computer storage plant

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data if necessary.
 3) Use of only non programmable calculator is allowed.
 4) Draw neat labeled diagrams whenever necessary.
 5) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any four of the following questions. 16

- a) What are the type sources?
- b) Discuss the strength, weaknesses and future prospects of water power India.
- c) What is the classification of hydropower plants. Explain any one in brief.
- d) Common load shared by two stations base load plant with 20 MW capacity and other being standby plant with 32 MW capacity. The yearly output for base load station is 126×10^6 KWh, and for standby station is 10.5×10^6 KWh. The peak load taken by standby station is 15 MW which works for 2500 hrs during the year. The base load station takes peak load as 22.5 MW. Calculate annual load factor, plant use factor, and capacity factor for both the stations.
- e) Calculate the power factor for a utility to supply a maximum 1600 kW of real power, when the reactive power at that time is 1125 kVAR.

Q.3 Attempt any two of the following questions. 12

- a) What do you understand by run-of-river plants? What are the parts and arrangements of such plants? Draw a neat sketch of such plant.
- b) What is water hammer in a pipe line? Derive the expression for the water hammer pressure in case of rigid pipe and elastic pipe.
- c) A penstock, with an internal diameter of 1.20 m, supplies water at a head equivalent to 17.6 kg/cm^2 . There is a possibility of 20% increase in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1020 kg/cm^2 and 85%, respectively. Calculate the approximate wall thickness of the penstock required.

Section – II

Q.4 Attempt any four of the following questions.**16**

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) What do you understand by 'pumped storage' plant? What are the advantages and disadvantages of this power plant?
- c) What are the advantages of reaction turbine over the Pelton wheel in respect of efficiency, size cost and maintenance?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase, 50 hertz generators. The generation is provided with 10 pairs of poles. The gross design head is 505 m and transmission efficiency of head race tunnel and penstocks together is to be 94 percent.
The four units together will provide for a power of 256000 KW at a guaranteed efficiency of 91 percent. The nozzle efficiency is 0.98.
Find:-
i) the design discharge for the turbine
ii) jet dia. and no. of jets
iii) the nozzle tip diameter
iv) the pitch circle dia. of the wheel
v) the specific speed and
vi) number of buckets on the wheel
- e) What are the types of intake structures? Explain any one with neat sketch.

Q.5 Attempt any two of the following questions.**12**

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) Describe how ocean tides are generated? With tidal cycle in view describe how hydropower can be generated? Also state the limitations of tidal power generation.
- c) At a hydroelectric power station Kaplan turbine is used which has following data
Operating head = 22.5m
output power at this head = 126 MW,
discharge = 615 m³/sec
speed = 68.2 rpm,
Runner tip to tip diameter = 9.3 m
Hub diameter = 4.3m
Number of blades = 6
Calculate the speed ratio, flow ratio, and the overall efficiency.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary.
 5) Draw neat labels diagrams whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Run of river plant is one which _____.
 a) has a limited pondage b) has no pondage at all
 c) is high head plant d) is a computer storage plant
- 2) Cavitations in turbine causes _____.
 a) low efficiency b) damage of blade surface
 c) vibration and noise d) all
- 3) Substructure of a powerhouse should provide space for _____.
 a) turbine governors
 b) generators for horizontal unit
 c) switch board
 d) low tension switches and other auxiliaries
 e) all
- 4) Trap efficiency of reservoir indicate _____.
 a) water trapped b) sediment retained
 c) sediment in flow d) sediment out flow
- 5) Which of the following is not a requirement for site selection of hydroelectric power plant?
 a) Availability of water b) Large catchment area
 c) Rocky land d) Sedimentation
- 6) Which kind of turbines changes the pressure of the water entered through it?
 a) Reaction turbines b) Impulse turbines
 c) Reactive turbines d) Kinetic turbines
- 7) Pelton turbines are mostly _____.
 a) Horizontal b) Vertical
 c) Inclined d) None of the above

- 8) Hydraulic energy is converted into another form of energy by hydraulic machines. What form of energy is that?
- a) Mechanical Energy b) Electrical Energy
c) Nuclear Energy d) Elastic Energy
- 9) Which principle is used in Hydraulic Turbines?
- a) Faraday law b) Newton's second law
c) Charles law d) Braggs law
- 10) In hydraulic turbines, inlet energy is greater than the outlet energy.
- a) True b) False
- 11) _____ is the electric power obtained from the energy of the water.
- a) Roto dynamic power b) Thermal power
c) Nuclear power d) Hydroelectric power
- 12) A hydel power plant of run-off-river type should be provided with pondage so that the _____.
- a) film capacity of the plant is increased
b) operating head is controlled
c) pressure inside the turbine casing remains constant
d) kinetic energy of the running water is fully utilized
- 13) In India, pumped storage power plant _____.
- a) does not exist at all b) exists is Rajasthan alone
c) exists in Kadampurai d) exists in Haryana
- 14) What is the efficiency of the simple elbow type draft tube?
- a) 10 b) 30
c) 60 d) 90

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Use of only non programmable calculator is allowed.
4) Draw neat labeled diagrams whenever necessary.
5) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any four of the following questions. 16

- a) What are the type sources?
- b) Discuss the strength, weaknesses and future prospects of water power India.
- c) What is the classification of hydropower plants. Explain any one in brief.
- d) Common load shared by two stations base load plant with 20 MW capacity and other being standby plant with 32 MW capacity. The yearly output for base load station is 126×10^6 KWh, and for standby station is 10.5×10^6 KWh. The peak load taken by standby station is 15 MW which works for 2500 hrs during the year. The base load station takes peak load as 22.5 MW. Calculate annual load factor, plant use factor, and capacity factor for both the stations.
- e) Calculate the power factor for a utility to supply a maximum 1600 kW of real power, when the reactive power at that time is 1125 kVAR.

Q.3 Attempt any two of the following questions. 12

- a) What do you understand by run-of-river plants? What are the parts and arrangements of such plants? Draw a neat sketch of such plant.
- b) What is water hammer in a pipe line? Derive the expression for the water hammer pressure in case of rigid pipe and elastic pipe.
- c) A penstock, with an internal diameter of 1.20 m, supplies water at a head equivalent to 17.6 kg/cm^2 . There is a possibility of 20% increase in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1020 kg/cm^2 and 85%, respectively. Calculate the approximate wall thickness of the penstock required.

Section – II

Q.4 Attempt any four of the following questions.

16

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) What do you understand by 'pumped storage' plant? What are the advantages and disadvantages of this power plant?
- c) What are the advantages of reaction turbine over the Pelton wheel in respect of efficiency, size cost and maintenance?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase, 50 hertz generators. The generation is provided with 10 pairs of poles. The gross design head is 505 m and transmission efficiency of head race tunnel and penstocks together is to be 94 percent.
The four units together will provide for a power of 256000 KW at a guaranteed efficiency of 91 percent. The nozzle efficiency is 0.98.
Find:-
i) the design discharge for the turbine
ii) jet dia. and no. of jets
iii) the nozzle tip diameter
iv) the pitch circle dia. of the wheel
v) the specific speed and
vi) number of buckets on the wheel
- e) What are the types of intake structures? Explain any one with neat sketch.

Q.5 Attempt any two of the following questions.

12

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) Describe how ocean tides are generated? With tidal cycle in view describe how hydropower can be generated? Also state the limitations of tidal power generation.
- c) At a hydroelectric power station Kaplan turbine is used which has following data
Operating head = 22.5m
output power at this head = 126 MW,
discharge = 615 m³/sec
speed = 68.2 rpm,
Runner tip to tip diameter = 9.3 m
Hub diameter = 4.3m
Number of blades = 6
Calculate the speed ratio, flow ratio, and the overall efficiency.

Seat No.	
----------	--

Set	R
-----	---

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary.
 - 5) Draw neat labels diagrams whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Trap efficiency of reservoir indicate _____.

a) water trapped	b) sediment retained
c) sediment in flow	d) sediment out flow
- 2) Which of the following is not a requirement for site selection of hydroelectric power plant?

a) Availability of water	b) Large catchment area
c) Rocky land	d) Sedimentation
- 3) Which kind of turbines changes the pressure of the water entered through it?

a) Reaction turbines	b) Impulse turbines
c) Reactive turbines	d) Kinetic turbines
- 4) Pelton turbines are mostly _____.

a) Horizontal	b) Vertical
c) Inclined	d) None of the above
- 5) Hydraulic energy is converted into another form of energy by hydraulic machines. What form of energy is that?

a) Mechanical Energy	b) Electrical Energy
c) Nuclear Energy	d) Elastic Energy
- 6) Which principle is used in Hydraulic Turbines?

a) Faraday law	b) Newton's second law
c) Charles law	d) Braggs law
- 7) In hydraulic turbines, inlet energy is greater than the outlet energy.

a) True	b) False
---------	----------
- 8) _____ is the electric power obtained from the energy of the water.

a) Roto dynamic power	b) Thermal power
c) Nuclear power	d) Hydroelectric power

- 9) A hydel power plant of run-off-river type should be provided with pondage so that the _____.
- a) film capacity of the plant is increased
 - b) operating head is controlled
 - c) pressure inside the turbine casing remains constant
 - d) kinetic energy of the running water is fully utilized
- 10) In India, pumped storage power plant _____.
- a) does not exist at all
 - b) exists in Rajasthan alone
 - c) exists in Kadampurai
 - d) exists in Haryana
- 11) What is the efficiency of the simple elbow type draft tube?
- a) 10
 - b) 30
 - c) 60
 - d) 90
- 12) Run of river plant is one which _____.
- a) has a limited pondage
 - b) has no pondage at all
 - c) is high head plant
 - d) is a computer storage plant
- 13) Cavitations in turbine causes _____.
- a) low efficiency
 - b) damage of blade surface
 - c) vibration and noise
 - d) all
- 14) Substructure of a powerhouse should provide space for _____.
- a) turbine governors
 - b) generators for horizontal unit
 - c) switch board
 - d) low tension switches and other auxiliaries
 - e) all

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Use of only non programmable calculator is allowed.
4) Draw neat labeled diagrams whenever necessary.
5) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any four of the following questions. 16

- What are the type sources?
- Discuss the strength, weaknesses and future prospects of water power India.
- What is the classification of hydropower plants. Explain any one in brief.
- Common load shared by two stations base load plant with 20 MW capacity and other being standby plant with 32 MW capacity. The yearly output for base load station is 126×10^6 KWh, and for standby station is 10.5×10^6 KWh. The peak load taken by standby station is 15 MW which works for 2500 hrs during the year. The base load station takes peak load as 22.5 MW. Calculate annual load factor, plant use factor, and capacity factor for both the stations.
- Calculate the power factor for a utility to supply a maximum 1600 kW of real power, when the reactive power at that time is 1125 kVAR.

Q.3 Attempt any two of the following questions. 12

- What do you understand by run-of-river plants? What are the parts and arrangements of such plants? Draw a neat sketch of such plant.
- What is water hammer in a pipe line? Derive the expression for the water hammer pressure in case of rigid pipe and elastic pipe.
- A penstock, with an internal diameter of 1.20 m, supplies water at a head equivalent to 17.6 kg/cm^2 . There is a possibility of 20% increase in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1020 kg/cm^2 and 85%, respectively. Calculate the approximate wall thickness of the penstock required.

Section – II

Q.4 Attempt any four of the following questions.**16**

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) What do you understand by 'pumped storage' plant? What are the advantages and disadvantages of this power plant?
- c) What are the advantages of reaction turbine over the Pelton wheel in respect of efficiency, size cost and maintenance?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase, 50 hertz generators. The generation is provided with 10 pairs of poles. The gross design head is 505 m and transmission efficiency of head race tunnel and penstocks together is to be 94 percent.
The four units together will provide for a power of 256000 KW at a guaranteed efficiency of 91 percent. The nozzle efficiency is 0.98.
Find:-
- i) the design discharge for the turbine
 - ii) jet dia. and no. of jets
 - iii) the nozzle tip diameter
 - iv) the pitch circle dia. of the wheel
 - v) the specific speed and
 - vi) number of buckets on the wheel
- e) What are the types of intake structures? Explain any one with neat sketch.

Q.5 Attempt any two of the following questions.**12**

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) Describe how ocean tides are generated? With tidal cycle in view describe how hydropower can be generated? Also state the limitations of tidal power generation.
- c) At a hydroelectric power station Kaplan turbine is used which has following data
Operating head = 22.5m
output power at this head = 126 MW,
discharge = 615 m³/sec
speed = 68.2 rpm,
Runner tip to tip diameter = 9.3 m
Hub diameter = 4.3m
Number of blades = 6
Calculate the speed ratio, flow ratio, and the overall efficiency.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary.
 - 5) Draw neat labels diagrams whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In India, pumped storage power plant _____.
 a) does not exist at all b) exists in Rajasthan alone
 c) exists in Kadampurai d) exists in Haryana
- 2) What is the efficiency of the simple elbow type draft tube?
 a) 10 b) 30
 c) 60 d) 90
- 3) Run of river plant is one which _____.
 a) has a limited pondage b) has no pondage at all
 c) is high head plant d) is a computer storage plant
- 4) Cavitations in turbine causes _____.
 a) low efficiency b) damage of blade surface
 c) vibration and noise d) all
- 5) Substructure of a powerhouse should provide space for _____.
 a) turbine governors
 b) generators for horizontal unit
 c) switch board
 d) low tension switches and other auxiliaries
 e) all
- 6) Trap efficiency of reservoir indicate _____.
 a) water trapped b) sediment retained
 c) sediment in flow d) sediment out flow
- 7) Which of the following is not a requirement for site selection of hydroelectric power plant?
 a) Availability of water b) Large catchment area
 c) Rocky land d) Sedimentation
- 8) Which kind of turbines changes the pressure of the water entered through it?
 a) Reaction turbines b) Impulse turbines
 c) Reactive turbines d) Kinetic turbines

Seat No.	
----------	--

Set **S**

**Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water Power Engineering (BTN01715)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Use of only non programmable calculator is allowed.
4) Draw neat labeled diagrams whenever necessary.
5) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any four of the following questions. 16

- a) What are the type sources?
- b) Discuss the strength, weaknesses and future prospects of water power India.
- c) What is the classification of hydropower plants. Explain any one in brief.
- d) Common load shared by two stations base load plant with 20 MW capacity and other being standby plant with 32 MW capacity. The yearly output for base load station is 126×10^6 KWh, and for standby station is 10.5×10^6 KWh. The peak load taken by standby station is 15 MW which works for 2500 hrs during the year. The base load station takes peak load as 22.5 MW. Calculate annual load factor, plant use factor, and capacity factor for both the stations.
- e) Calculate the power factor for a utility to supply a maximum 1600 kW of real power, when the reactive power at that time is 1125 kVAR.

Q.3 Attempt any two of the following questions. 12

- a) What do you understand by run-of-river plants? What are the parts and arrangements of such plants? Draw a neat sketch of such plant.
- b) What is water hammer in a pipe line? Derive the expression for the water hammer pressure in case of rigid pipe and elastic pipe.
- c) A penstock, with an internal diameter of 1.20 m, supplies water at a head equivalent to 17.6 kg/cm^2 . There is a possibility of 20% increase in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1020 kg/cm^2 and 85%, respectively. Calculate the approximate wall thickness of the penstock required.

Section – II

Q.4 Attempt any four of the following questions.**16**

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) What do you understand by 'pumped storage' plant? What are the advantages and disadvantages of this power plant?
- c) What are the advantages of reaction turbine over the Pelton wheel in respect of efficiency, size cost and maintenance?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase, 50 hertz generators. The generation is provided with 10 pairs of poles. The gross design head is 505 m and transmission efficiency of head race tunnel and penstocks together is to be 94 percent.
The four units together will provide for a power of 256000 KW at a guaranteed efficiency of 91 percent. The nozzle efficiency is 0.98.
Find:-
i) the design discharge for the turbine
ii) jet dia. and no. of jets
iii) the nozzle tip diameter
iv) the pitch circle dia. of the wheel
v) the specific speed and
vi) number of buckets on the wheel
- e) What are the types of intake structures? Explain any one with neat sketch.

Q.5 Attempt any two of the following questions.**12**

- a) What are the important types of turbines? Enlist the factors on which choice of turbine depends.
- b) Describe how ocean tides are generated? With tidal cycle in view describe how hydropower can be generated? Also state the limitations of tidal power generation.
- c) At a hydroelectric power station Kaplan turbine is used which has following data
Operating head = 22.5m
output power at this head = 126 MW,
discharge = 615 m³/sec
speed = 68.2 rpm,
Runner tip to tip diameter = 9.3 m
Hub diameter = 4.3m
Number of blades = 6
Calculate the speed ratio, flow ratio, and the overall efficiency.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry two marks.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Acid Rain is caused by Oxides of _____.
a) Phosphorus and Carbon b) Sulphur and Nitrogen
c) Sulphur and Phosphorus d) Nitrogen and Carbon
- 2) In cyclone gas flow reverses from _____ part.
a) Vortex finder b) Conical
c) Cylindrical d) Outlet
- 3) ESP can give particulate removal efficiency upto _____%.
a) 90 b) 95
c) 97 d) 99.99
- 4) Packed bed tower is a type of _____.
a) Stack monitoring kit b) Dry collector
c) Wet collector d) Bag house filter
- 5) _____ prevents upward movement of air pollutants if it exists in atmosphere.
a) DALR b) Wind
c) Clouds d) An inversion
- 6) In tray type gravity settler, trays are fixed to _____ the efficiency.
a) Decrease b) Increase
c) Keep Constant d) None of above
- 7) Photochemical smog commonly occurs in _____ area.
a) Urban b) Motorized
c) Both a and b d) None of these
- 8) Bags in bag house filter are _____ m in length.
a) 12-40 b) 10-15
c) 15-20 d) 2-10
- 9) Fugitive emissions consist of _____.
a) Street dust
b) Dust from construction activities
c) Dust from farm cultivation
d) All of the above

- 10)** The depletion of ozone in outer atmosphere may result in increased _____.
a) Heart attack cases b) Skin cancer cases
c) Asthma cases d) None of these
- 11)** Concentration of pollutants in stack emissions can be measured by _____.
a) High volume sampler b) Stack monitoring kit
c) Thermometer d) Hygrometer
- 12)** As per NAAQS (old), standard for PM₁₀ for eco-sensitive area considering annual average is _____ micrograms/m³.
a) 60 b) 100
c) 8 d) 80
- 13)** Noise pollution is created if sound is in excess to _____.
a) 70-75 dB b) 50-60 dB
c) 80-99 dB d) 40-65 dB
- 14)** Day time noise standard prescribed for residential areas in India is _____.
a) 75 dB b) 65 dB
c) 50 dB d) 55 dB

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.No.2 & Q.No.6 is compulsory. Attempt any two questions from the remaining questions from each section.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain with neat sketch plume behavior. **05**
b) Explain the different sources of particulate matter. Illustrate with examples. **05**
- Q.3** a) Discuss effect of SO₂ in presence of SPM on human health with the help of tabular format. **05**
b) What is meant by radiation inversion and subsidence inversion? Explain with sketch. **04**
- Q.4** a) Give Gaussian dispersion model equation used for prediction of concentration of air pollutants. **04**
b) A factory uses 200000 litre of fuel oil per month. The exhaust gases from factory contain the following quantities of pollutant per ML per year: **05**
i) Particulate matter = 3 tonnes
ii) Sulphur dioxide = 59.7 tonnes
iii) Hydrocarbons = 0.37 tonnes
iv) Carbon monoxide = 0.52 tonnes
Determine the safe height of chimney required for safe dispersion of pollutants.
- Q.5** a) What is stack monitoring? Write in detail isokinetic sampling? Explain in detail with the help of figures. **04**
b) A conventional cyclone with diameter 1 m handles 3 m³/sec of air carrying particles of density 2000 kg/m³. Number of effective turns = 6. Determine cut size diameter (dpc) if $\mu = 1.81 \times 10^{-5}$ kg/m.sec. **05**
(Note - treat it as a standard cyclone).

Section – II

- Q.6** a) Explain working of gravity settling chamber with neat sketch. Also write advantages and disadvantages. **05**
b) A settling chamber is designed for removing 90 μ dia. Particles with 100% efficiency. The particulate matter density is 1250 kg/m³. Depth and width of chamber is 2.2 m each. Determine: **05**
i) Length of chamber required without trays
ii) Length of chamber with 10 trays

- Q.7** a) An ESP with overall spacing of 0.23 cm and mean gas velocity 1.5 m/s has collector plate area of 5000 m² gives efficiency of 97% in treating 200 m³/s of gas. To achieve 98% and 99% efficiency. What should be plate area required? **05**
- b) Explain the principle working of wet scrubber. **04**
- Q.8** a) Discuss in brief the sources of noise. **04**
- b) Explain decibel scale with sample sound level and frequency of sound waves. **05**
- Q.9** **Write short notes on the following:** **09**
- a) National ambient quality standards for noise
- b) Effects of noise on health
- c) Instrumentation Requirements in noise

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Bags in bag house filter are _____ m in length.
 - a) 12-40
 - b) 10-15
 - c) 15-20
 - d) 2-10
- 2) Fugitive emissions consist of _____.
 - a) Street dust
 - b) Dust from construction activities
 - c) Dust from farm cultivation
 - d) All of the above
- 3) The depletion of ozone in outer atmosphere may result in increased _____.
 - a) Heart attack cases
 - b) Skin cancer cases
 - c) Asthma cases
 - d) None of these
- 4) Concentration of pollutants in stack emissions can be measured by _____.
 - a) High volume sampler
 - b) Stack monitoring kit
 - c) Thermometer
 - d) Hygrometer
- 5) As per NAAQS (old), standard for PM₁₀ for eco-sensitive area considering annual average is _____ micrograms/m³.
 - a) 60
 - b) 100
 - c) 8
 - d) 80
- 6) Noise pollution is created if sound is in excess to _____.
 - a) 70-75 dB
 - b) 50-60 dB
 - c) 80-99 dB
 - d) 40-65 dB
- 7) Day time noise standard prescribed for residential areas in India is _____.
 - a) 75 dB
 - b) 65 dB
 - c) 50 dB
 - d) 55 dB
- 8) Acid Rain is caused by Oxides of _____.
 - a) Phosphorus and Carbon
 - b) Sulphur and Nitrogen
 - c) Sulphur and Phosphorus
 - d) Nitrogen and Carbon

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Q.No.2 & Q.No.6 is compulsory. Attempt any two questions from the remaining questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain with neat sketch plume behavior. **05**
 b) Explain the different sources of particulate matter. Illustrate with examples. **05**
- Q.3** a) Discuss effect of SO₂ in presence of SPM on human health with the help of tabular format. **05**
 b) What is meant by radiation inversion and subsidence inversion? Explain with sketch. **04**
- Q.4** a) Give Gaussian dispersion model equation used for prediction of concentration of air pollutants. **04**
 b) A factory uses 200000 litre of fuel oil per month. The exhaust gases from factory contain the following quantities of pollutant per ML per year: **05**
 i) Particulate matter = 3 tonnes
 ii) Sulphur dioxide = 59.7 tonnes
 iii) Hydrocarbons = 0.37 tonnes
 iv) Carbon monoxide = 0.52 tonnes
 Determine the safe height of chimney required for safe dispersion of pollutants.
- Q.5** a) What is stack monitoring? Write in detail isokinetic sampling? Explain in detail with the help of figures. **04**
 b) A conventional cyclone with diameter 1 m handles 3 m³/sec of air carrying particles of density 2000 kg/m³. Number of effective turns = 6. Determine cut size diameter (dpc) if $\mu = 1.81 \times 10^{-5}$ kg/m.sec. **05**
 (Note - treat it as a standard cyclone).

Section – II

- Q.6** a) Explain working of gravity settling chamber with neat sketch. Also write advantages and disadvantages. **05**
 b) A settling chamber is designed for removing 90 μ dia. Particles with 100% efficiency. The particulate matter density is 1250 kg/m³. Depth and width of chamber is 2.2 m each. Determine: **05**
 i) Length of chamber required without trays
 ii) Length of chamber with 10 trays

- Q.7** a) An ESP with overall spacing of 0.23 cm and mean gas velocity 1.5 m/s has collector plate area of 5000 m² gives efficiency of 97% in treating 200 m³/s of gas. To achieve 98% and 99% efficiency. What should be plate area required? **05**
- b) Explain the principle working of wet scrubber. **04**
- Q.8** a) Discuss in brief the sources of noise. **04**
- b) Explain decibel scale with sample sound level and frequency of sound waves. **05**
- Q.9** **Write short notes on the following:** **09**
- a) National ambient quality standards for noise
- b) Effects of noise on health
- c) Instrumentation Requirements in noise

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Concentration of pollutants in stack emissions can be measured by _____.
 a) High volume sampler b) Stack monitoring kit
 c) Thermometer d) Hygrometer
- 2) As per NAAQS (old), standard for PM₁₀ for eco-sensitive area considering annual average is _____ micrograms/m³.
 a) 60 b) 100
 c) 8 d) 80
- 3) Noise pollution is created if sound is in excess to _____.
 a) 70-75 dB b) 50-60 dB
 c) 80-99 dB d) 40-65 dB
- 4) Day time noise standard prescribed for residential areas in India is _____.
 a) 75 dB b) 65 dB
 c) 50 dB d) 55 dB
- 5) Acid Rain is caused by Oxides of _____.
 a) Phosphorus and Carbon b) Sulphur and Nitrogen
 c) Sulphur and Phosphorus d) Nitrogen and Carbon
- 6) In cyclone gas flow reverses from _____ part.
 a) Vortex finder b) Conical
 c) Cylindrical d) Outlet
- 7) ESP can give particulate removal efficiency upto _____%.
 a) 90 b) 95
 c) 97 d) 99.99
- 8) Packed bed tower is a type of _____.
 a) Stack monitoring kit b) Dry collector
 c) Wet collector d) Bag house filter
- 9) _____ prevents upward movement of air pollutants if it exists in atmosphere.
 a) DALR b) Wind
 c) Clouds d) An inversion

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.No.2 & Q.No.6 is compulsory. Attempt any two questions from the remaining questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain with neat sketch plume behavior. **05**
 b) Explain the different sources of particulate matter. Illustrate with examples. **05**
- Q.3** a) Discuss effect of SO₂ in presence of SPM on human health with the help of tabular format. **05**
 b) What is meant by radiation inversion and subsidence inversion? Explain with sketch. **04**
- Q.4** a) Give Gaussian dispersion model equation used for prediction of concentration of air pollutants. **04**
 b) A factory uses 200000 litre of fuel oil per month. The exhaust gases from factory contain the following quantities of pollutant per ML per year: **05**
 i) Particulate matter = 3 tonnes
 ii) Sulphur dioxide = 59.7 tonnes
 iii) Hydrocarbons = 0.37 tonnes
 iv) Carbon monoxide = 0.52 tonnes
 Determine the safe height of chimney required for safe dispersion of pollutants.
- Q.5** a) What is stack monitoring? Write in detail isokinetic sampling? Explain in detail with the help of figures. **04**
 b) A conventional cyclone with diameter 1 m handles 3 m³/sec of air carrying particles of density 2000 kg/m³. Number of effective turns = 6. Determine cut size diameter (dpc) if $\mu = 1.81 \times 10^{-5}$ kg/m.sec. **05**
 (Note - treat it as a standard cyclone).

Section – II

- Q.6** a) Explain working of gravity settling chamber with neat sketch. Also write advantages and disadvantages. **05**
 b) A settling chamber is designed for removing 90 μ dia. Particles with 100% efficiency. The particulate matter density is 1250 kg/m³. Depth and width of chamber is 2.2 m each. Determine: **05**
 i) Length of chamber required without trays
 ii) Length of chamber with 10 trays

- Q.7** a) An ESP with overall spacing of 0.23 cm and mean gas velocity 1.5 m/s has collector plate area of 5000 m² gives efficiency of 97% in treating 200 m³/s of gas. To achieve 98% and 99% efficiency. What should be plate area required? **05**
- b) Explain the principle working of wet scrubber. **04**
- Q.8** a) Discuss in brief the sources of noise. **04**
- b) Explain decibel scale with sample sound level and frequency of sound waves. **05**
- Q.9 Write short notes on the following:** **09**
- a) National ambient quality standards for noise
- b) Effects of noise on health
- c) Instrumentation Requirements in noise

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry two marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In tray type gravity settler, trays are fixed to _____ the efficiency.
 - a) Decrease
 - b) Increase
 - c) Keep Constant
 - d) None of above
- 2) Photochemical smog commonly occurs in _____ area.
 - a) Urban
 - b) Motorized
 - c) Both a and b
 - d) None of these
- 3) Bags in bag house filter are _____ m in length.
 - a) 12-40
 - b) 10-15
 - c) 15-20
 - d) 2-10
- 4) Fugitive emissions consist of _____.
 - a) Street dust
 - b) Dust from construction activities
 - c) Dust from farm cultivation
 - d) All of the above
- 5) The depletion of ozone in outer atmosphere may result in increased _____.
 - a) Heart attack cases
 - b) Skin cancer cases
 - c) Asthma cases
 - d) None of these
- 6) Concentration of pollutants in stack emissions can be measured by _____.
 - a) High volume sampler
 - b) Stack monitoring kit
 - c) Thermometer
 - d) Hygrometer
- 7) As per NAAQS (old), standard for PM₁₀ for eco-sensitive area considering annual average is _____ micrograms/m³.
 - a) 60
 - b) 100
 - c) 8
 - d) 80
- 8) Noise pollution is created if sound is in excess to _____.
 - a) 70-75 dB
 - b) 50-60 dB
 - c) 80-99 dB
 - d) 40-65 dB

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air and Noise Pollution and Control (BTN01716)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q.No.2 & Q.No.6 is compulsory. Attempt any two questions from the remaining questions from each section.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain with neat sketch plume behavior. **05**
b) Explain the different sources of particulate matter. Illustrate with examples. **05**
- Q.3** a) Discuss effect of SO₂ in presence of SPM on human health with the help of tabular format. **05**
b) What is meant by radiation inversion and subsidence inversion? Explain with sketch. **04**
- Q.4** a) Give Gaussian dispersion model equation used for prediction of concentration of air pollutants. **04**
b) A factory uses 200000 litre of fuel oil per month. The exhaust gases from factory contain the following quantities of pollutant per ML per year: **05**
i) Particulate matter = 3 tonnes
ii) Sulphur dioxide = 59.7 tonnes
iii) Hydrocarbons = 0.37 tonnes
iv) Carbon monoxide = 0.52 tonnes
Determine the safe height of chimney required for safe dispersion of pollutants.
- Q.5** a) What is stack monitoring? Write in detail isokinetic sampling? Explain in detail with the help of figures. **04**
b) A conventional cyclone with diameter 1 m handles 3 m³/sec of air carrying particles of density 2000 kg/m³. Number of effective turns = 6. Determine cut size diameter (dpc) if $\mu = 1.81 \times 10^{-5}$ kg/m.sec. **05**
(Note - treat it as a standard cyclone).

Section – II

- Q.6** a) Explain working of gravity settling chamber with neat sketch. Also write advantages and disadvantages. **05**
b) A settling chamber is designed for removing 90 μ dia. Particles with 100% efficiency. The particulate matter density is 1250 kg/m³. Depth and width of chamber is 2.2 m each. Determine: **05**
i) Length of chamber required without trays
ii) Length of chamber with 10 trays

- Q.7** a) An ESP with overall spacing of 0.23 cm and mean gas velocity 1.5 m/s has collector plate area of 5000 m² gives efficiency of 97% in treating 200 m³/s of gas. To achieve 98% and 99% efficiency. What should be plate area required? **05**
- b) Explain the principle working of wet scrubber. **04**
- Q.8** a) Discuss in brief the sources of noise. **04**
- b) Explain decibel scale with sample sound level and frequency of sound waves. **05**
- Q.9** **Write short notes on the following:** **09**
- a) National ambient quality standards for noise
- b) Effects of noise on health
- c) Instrumentation Requirements in noise

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is vulnerability in the context of development?
 - a) A measure of economic growth
 - b) The state of being exposed to the risk of harm or damage
 - c) A synonym for resilience
 - d) The level of technological advancement
- 2) How does vegetation and afforestation contribute to disaster mitigation?
 - a) By creating barriers to emergency responders
 - b) By increasing vulnerability to disasters
 - c) By providing natural barriers against floods, landslides, and soil erosion
 - d) By promoting deforestation
- 3) Which of the following organization is the apex authority of disaster management in India?

a) NDA	b) NDMA
c) CDMA	d) INDR
- 4) What is the role of media in disaster communication?
 - a) To promote misinformation and confusion
 - b) To limit public awareness
 - c) To provide timely and accurate information to the public, fostering preparedness and response
 - d) To ignore the needs of vulnerable populations
- 5) Which international agency is often involved in providing financial assistance for poverty reduction and development projects in developing countries?
 - a) United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - b) World Health Organization (WHO)
 - c) World Bank
 - d) International Labour Organization (ILO)

- 6) In flood-prone areas, what feature is important for the ground floor of a disaster resistant house?
- a) Elevated foundation
 - b) Basement
 - c) Slab foundation
 - d) Sunken living room
- 7) How does gender play a role in socio-economic rehabilitation efforts?
- a) It is irrelevant to rehabilitation strategies
 - b) Women are excluded from rehabilitation programs
 - c) Gender-specific needs are considered for inclusive rehabilitation
 - d) Men are prioritized over women in all programs.
- 8) What is the significance of community participation in socio-economic rehabilitation?
- a) It delays the recovery process
 - b) It ensures that rehabilitation efforts align with local needs and priorities
 - c) It hinders external intervention
 - d) It increases dependency on aid organizations
- 9) What is the role of baseline data in the monitoring process?
- a) To determine the final project outcome
 - b) To establish a reference point for measuring changes and impacts
 - c) To identify the individuals responsible for the project
 - d) To compare different rehabilitation projects
- 10) What is the role of prioritization in time management during a disaster?
- a) To focus solely on non-urgent tasks
 - b) To identify and address high-priority and time-sensitive activities
 - c) To promote procrastination
 - d) To discourage collaboration with external agencies
- 11) Why is community involvement crucial in sustainable development initiatives?
- a) It increases bureaucratic hurdles
 - b) It ensures local needs are considered and met
 - c) It leads to inefficient resource allocation
 - d) It hinders the implementation of projects
- 12) What is the primary goal of Emergency Health Operations (EHO) during a crisis?
- a) To prioritize routine health services
 - b) To expedite non-emergency medical procedures
 - c) To ensure the timely and effective delivery of health services in response to a crisis
 - d) To minimize community involvement
- 13) What is the purpose of a lightning rod in disaster-resistant construction?
- a) Prevent earthquakes
 - b) Reduce wind impact
 - c) Protect against lightning strikes
 - d) Enhance insulation
- 14) What role does feedback play in the monitoring and evaluation process?
- a) It is irrelevant to the process
 - b) It helps identify areas for improvement and informs decision making
 - c) It is solely for public relations purposes
 - d) It is only necessary at the project's conclusion

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) Give the classification of damage as per the Medvedev- Sponheuer- Karnik (MSK) Scale of 1964. **04**
b) Write short note on Disaster Management Act. **03**
c) Write note on Fiscal Discipline. **03**
- Q.3** a) Write the importance of Disaster mitigation. **05**
b) What are the objectives of damage assessment? **04**
- Q.4** a) What do you mean by Economic Infrastructure? Explain development of Economic Infrastructure. **05**
b) Write Key elements of contingency plans for reconstructions. **04**
- Q.5** a) Mention various guidelines for disaster resistant construction. **05**
b) Write short note on Prime Minister's National Relief Fund. **04**

Section – II

- Q.6** a) What are the key steps and considerations for evaluating rehabilitation work? **04**
b) What is Speedy recovery? What is its Importance? **03**
c) What is Significance of Coordination? **03**
- Q.7** a) Write note on rehabilitation of artisans and small businessmen affected due to Disasters. **05**
b) What are the roles of Information Dissemination? **04**
- Q.8** a) What is the importance and challenges in creating Long-term Jobs? **05**
b) What are the principles of Safe Development in Recovery? **04**
- Q.9** a) Write note on safe drinking water and response strategies for it after disaster. **05**
b) Write short note on Emergency Health Operations. **04**

Seat No.	
---------------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the significance of community participation in socio-economic rehabilitation?
 - a) It delays the recovery process
 - b) It ensures that rehabilitation efforts align with local needs and priorities
 - c) It hinders external intervention
 - d) It increases dependency on aid organizations
- 2) What is the role of baseline data in the monitoring process?
 - a) To determine the final project outcome
 - b) To establish a reference point for measuring changes and impacts
 - c) To identify the individuals responsible for the project
 - d) To compare different rehabilitation projects
- 3) What is the role of prioritization in time management during a disaster?
 - a) To focus solely on non-urgent tasks
 - b) To identify and address high-priority and time-sensitive activities
 - c) To promote procrastination
 - d) To discourage collaboration with external agencies
- 4) Why is community involvement crucial in sustainable development initiatives?
 - a) It increases bureaucratic hurdles
 - b) It ensures local needs are considered and met
 - c) It leads to inefficient resource allocation
 - d) It hinders the implementation of projects
- 5) What is the primary goal of Emergency Health Operations (EHO) during a crisis?
 - a) To prioritize routine health services
 - b) To expedite non-emergency medical procedures
 - c) To ensure the timely and effective delivery of health services in response to a crisis
 - d) To minimize community involvement

- 6) What is the purpose of a lightning rod in disaster-resistant construction?
- Prevent earthquakes
 - Reduce wind impact
 - Protect against lightning strikes
 - Enhance insulation
- 7) What role does feedback play in the monitoring and evaluation process?
- It is irrelevant to the process
 - It helps identify areas for improvement and informs decision making
 - It is solely for public relations purposes
 - It is only necessary at the project's conclusion
- 8) What is vulnerability in the context of development?
- A measure of economic growth
 - The state of being exposed to the risk of harm or damage
 - A synonym for resilience
 - The level of technological advancement
- 9) How does vegetation and afforestation contribute to disaster mitigation?
- By creating barriers to emergency responders
 - By increasing vulnerability to disasters
 - By providing natural barriers against floods, landslides, and soil erosion
 - By promoting deforestation
- 10) Which of the following organization is the apex authority of disaster management in India?
- NDA
 - NDMA
 - CDMA
 - INDR
- 11) What is the role of media in disaster communication?
- To promote misinformation and confusion
 - To limit public awareness
 - To provide timely and accurate information to the public, fostering preparedness and response
 - To ignore the needs of vulnerable populations
- 12) Which international agency is often involved in providing financial assistance for poverty reduction and development projects in developing countries?
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - World Health Organization (WHO)
 - World Bank
 - International Labour Organization (ILO)
- 13) In flood-prone areas, what feature is important for the ground floor of a disaster resistant house?
- Elevated foundation
 - Basement
 - Slab foundation
 - Sunken living room
- 14) How does gender play a role in socio-economic rehabilitation efforts?
- It is irrelevant to rehabilitation strategies
 - Women are excluded from rehabilitation programs
 - Gender-specific needs are considered for inclusive rehabilitation
 - Men are prioritized over women in all programs.

Seat No.	
-------------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) Give the classification of damage as per the Medvedev- Sponheuer- Karnik (MSK) Scale of 1964. **04**
b) Write short note on Disaster Management Act. **03**
c) Write note on Fiscal Discipline. **03**
- Q.3** a) Write the importance of Disaster mitigation. **05**
b) What are the objectives of damage assessment? **04**
- Q.4** a) What do you mean by Economic Infrastructure? Explain development of Economic Infrastructure. **05**
b) Write Key elements of contingency plans for reconstructions. **04**
- Q.5** a) Mention various guidelines for disaster resistant construction. **05**
b) Write short note on Prime Minister's National Relief Fund. **04**

Section – II

- Q.6** a) What are the key steps and considerations for evaluating rehabilitation work? **04**
b) What is Speedy recovery? What is its Importance? **03**
c) What is Significance of Coordination? **03**
- Q.7** a) Write note on rehabilitation of artisans and small businessmen affected due to Disasters. **05**
b) What are the roles of Information Dissemination? **04**
- Q.8** a) What is the importance and challenges in creating Long-term Jobs? **05**
b) What are the principles of Safe Development in Recovery? **04**
- Q.9** a) Write note on safe drinking water and response strategies for it after disaster. **05**
b) Write short note on Emergency Health Operations. **04**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Why is community involvement crucial in sustainable development initiatives?
 - a) It increases bureaucratic hurdles
 - b) It ensures local needs are considered and met
 - c) It leads to inefficient resource allocation
 - d) It hinders the implementation of projects
- 2) What is the primary goal of Emergency Health Operations (EHO) during a crisis?
 - a) To prioritize routine health services
 - b) To expedite non-emergency medical procedures
 - c) To ensure the timely and effective delivery of health services in response to a crisis
 - d) To minimize community involvement
- 3) What is the purpose of a lightning rod in disaster-resistant construction?
 - a) Prevent earthquakes
 - b) Reduce wind impact
 - c) Protect against lightning strikes
 - d) Enhance insulation
- 4) What role does feedback play in the monitoring and evaluation process?
 - a) It is irrelevant to the process
 - b) It helps identify areas for improvement and informs decision making
 - c) It is solely for public relations purposes
 - d) It is only necessary at the project's conclusion
- 5) What is vulnerability in the context of development?
 - a) A measure of economic growth
 - b) The state of being exposed to the risk of harm or damage
 - c) A synonym for resilience
 - d) The level of technological advancement

- 6) How does vegetation and afforestation contribute to disaster mitigation?
- By creating barriers to emergency responders
 - By increasing vulnerability to disasters
 - By providing natural barriers against floods, landslides, and soil erosion
 - By promoting deforestation
- 7) Which of the following organization is the apex authority of disaster management in India?
- NDA
 - NDMA
 - CDMA
 - INDR
- 8) What is the role of media in disaster communication?
- To promote misinformation and confusion
 - To limit public awareness
 - To provide timely and accurate information to the public, fostering preparedness and response
 - To ignore the needs of vulnerable populations
- 9) Which international agency is often involved in providing financial assistance for poverty reduction and development projects in developing countries?
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - World Health Organization (WHO)
 - World Bank
 - International Labour Organization (ILO)
- 10) In flood-prone areas, what feature is important for the ground floor of a disaster resistant house?
- Elevated foundation
 - Basement
 - Slab foundation
 - Sunken living room
- 11) How does gender play a role in socio-economic rehabilitation efforts?
- It is irrelevant to rehabilitation strategies
 - Women are excluded from rehabilitation programs
 - Gender-specific needs are considered for inclusive rehabilitation
 - Men are prioritized over women in all programs.
- 12) What is the significance of community participation in socio-economic rehabilitation?
- It delays the recovery process
 - It ensures that rehabilitation efforts align with local needs and priorities
 - It hinders external intervention
 - It increases dependency on aid organizations
- 13) What is the role of baseline data in the monitoring process?
- To determine the final project outcome
 - To establish a reference point for measuring changes and impacts
 - To identify the individuals responsible for the project
 - To compare different rehabilitation projects
- 14) What is the role of prioritization in time management during a disaster?
- To focus solely on non-urgent tasks
 - To identify and address high-priority and time-sensitive activities
 - To promote procrastination
 - To discourage collaboration with external agencies

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) Give the classification of damage as per the Medvedev- Sponheuer- Karnik (MSK) Scale of 1964. **04**
b) Write short note on Disaster Management Act. **03**
c) Write note on Fiscal Discipline. **03**
- Q.3** a) Write the importance of Disaster mitigation. **05**
b) What are the objectives of damage assessment? **04**
- Q.4** a) What do you mean by Economic Infrastructure? Explain development of Economic Infrastructure. **05**
b) Write Key elements of contingency plans for reconstructions. **04**
- Q.5** a) Mention various guidelines for disaster resistant construction. **05**
b) Write short note on Prime Minister's National Relief Fund. **04**

Section – II

- Q.6** a) What are the key steps and considerations for evaluating rehabilitation work? **04**
b) What is Speedy recovery? What is its Importance? **03**
c) What is Significance of Coordination? **03**
- Q.7** a) Write note on rehabilitation of artisans and small businessmen affected due to Disasters. **05**
b) What are the roles of Information Dissemination? **04**
- Q.8** a) What is the importance and challenges in creating Long-term Jobs? **05**
b) What are the principles of Safe Development in Recovery? **04**
- Q.9** a) Write note on safe drinking water and response strategies for it after disaster. **05**
b) Write short note on Emergency Health Operations. **04**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In flood-prone areas, what feature is important for the ground floor of a disaster resistant house?
 - a) Elevated foundation
 - b) Basement
 - c) Slab foundation
 - d) Sunken living room
- 2) How does gender play a role in socio-economic rehabilitation efforts?
 - a) It is irrelevant to rehabilitation strategies
 - b) Women are excluded from rehabilitation programs
 - c) Gender-specific needs are considered for inclusive rehabilitation
 - d) Men are prioritized over women in all programs.
- 3) What is the significance of community participation in socio-economic rehabilitation?
 - a) It delays the recovery process
 - b) It ensures that rehabilitation efforts align with local needs and priorities
 - c) It hinders external intervention
 - d) It increases dependency on aid organizations
- 4) What is the role of baseline data in the monitoring process?
 - a) To determine the final project outcome
 - b) To establish a reference point for measuring changes and impacts
 - c) To identify the individuals responsible for the project
 - d) To compare different rehabilitation projects
- 5) What is the role of prioritization in time management during a disaster?
 - a) To focus solely on non-urgent tasks
 - b) To identify and address high-priority and time-sensitive activities
 - c) To promote procrastination
 - d) To discourage collaboration with external agencies
- 6) Why is community involvement crucial in sustainable development initiatives?
 - a) It increases bureaucratic hurdles
 - b) It ensures local needs are considered and met
 - c) It leads to inefficient resource allocation
 - d) It hinders the implementation of projects

- 7) What is the primary goal of Emergency Health Operations (EHO) during a crisis?
- To prioritize routine health services
 - To expedite non-emergency medical procedures
 - To ensure the timely and effective delivery of health services in response to a crisis
 - To minimize community involvement
- 8) What is the purpose of a lightning rod in disaster-resistant construction?
- Prevent earthquakes
 - Reduce wind impact
 - Protect against lightning strikes
 - Enhance insulation
- 9) What role does feedback play in the monitoring and evaluation process?
- It is irrelevant to the process
 - It helps identify areas for improvement and informs decision making
 - It is solely for public relations purposes
 - It is only necessary at the project's conclusion
- 10) What is vulnerability in the context of development?
- A measure of economic growth
 - The state of being exposed to the risk of harm or damage
 - A synonym for resilience
 - The level of technological advancement
- 11) How does vegetation and afforestation contribute to disaster mitigation?
- By creating barriers to emergency responders
 - By increasing vulnerability to disasters
 - By providing natural barriers against floods, landslides, and soil erosion
 - By promoting deforestation
- 12) Which of the following organization is the apex authority of disaster management in India?
- NDA
 - NDMA
 - CDMA
 - INDR
- 13) What is the role of media in disaster communication?
- To promote misinformation and confusion
 - To limit public awareness
 - To provide timely and accurate information to the public, fostering preparedness and response
 - To ignore the needs of vulnerable populations
- 14) Which international agency is often involved in providing financial assistance for poverty reduction and development projects in developing countries?
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - World Health Organization (WHO)
 - World Bank
 - International Labour Organization (ILO)

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Recovery, Rehabilitation and Reconstruction (BTN01717)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.

Section – I

- Q.2** a) Give the classification of damage as per the Medvedev- Sponheuer- Karnik (MSK) Scale of 1964. **04**
b) Write short note on Disaster Management Act. **03**
c) Write note on Fiscal Discipline. **03**
- Q.3** a) Write the importance of Disaster mitigation. **05**
b) What are the objectives of damage assessment? **04**
- Q.4** a) What do you mean by Economic Infrastructure? Explain development of Economic Infrastructure. **05**
b) Write Key elements of contingency plans for reconstructions. **04**
- Q.5** a) Mention various guidelines for disaster resistant construction. **05**
b) Write short note on Prime Minister's National Relief Fund. **04**

Section – II

- Q.6** a) What are the key steps and considerations for evaluating rehabilitation work? **04**
b) What is Speedy recovery? What is its Importance? **03**
c) What is Significance of Coordination? **03**
- Q.7** a) Write note on rehabilitation of artisans and small businessmen affected due to Disasters. **05**
b) What are the roles of Information Dissemination? **04**
- Q.8** a) What is the importance and challenges in creating Long-term Jobs? **05**
b) What are the principles of Safe Development in Recovery? **04**
- Q.9** a) Write note on safe drinking water and response strategies for it after disaster. **05**
b) Write short note on Emergency Health Operations. **04**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ following are components of bridges.

a) Pier	b) Abutment
c) Foundation	d) All of these
- 2) Factors affecting Selection of Type of Bridge and Bridge Site are _____.

a) The nature and bed conditions of river or stream
b) Hydraulic data collected at the site
c) The climatic condition of the area
d) All of these
- 3) Abutment of Bridge is _____.

a) Foundation	b) End pier
c) Bearing	d) All of these
- 4) Types of grades separated structures are _____.

a) Overpass	b) Under pass
c) Flyover	d) All of these
- 5) Types of Bridge foundations are _____.

a) Caisson Foundation	b) Pile foundation
c) Pier Foundation	d) All of these
- 6) Steps involved in the Construction of Diaphragm Walls are _____.

a) Excavation Preparation	b) Slurry Trench
c) Concrete Pouring	d) All of these
- 7) Pipe jacking involves moving _____ to the ground.

a) Box	b) Pipe
c) both a and b	d) All of these
- 8) Launching girders for bridges involves the following steps _____.

a) Planning and Design	b) Fabrication
c) Transportation to the Site	d) All of these

- 9) Offshore platforms are _____.
- a) Structure built in lake
 - b) Structure built on the sea
 - c) Structure built in the pond
 - d) All of these
- 10) Material handling is _____.
- a) Process of change of material
 - b) Process of transporting, lifting, and placing various construction materials and equipment.
 - c) Process of finding Quality of Construction Material.
 - d) Process of finding Quantity of Construction Material
- 11) Erecting lightweight components on tall structures in bridges requires _____.
- a) Engineering and Design
 - b) Assembly and Connection
 - c) Specialized Equipment
 - d) All of these
- 12) The cross section of a pier may be _____.
- a) with triangular edges towards upstream and downstream sides
 - b) with curved faces on upstream and downstream sides
 - c) rectangular
 - d) all the above
- 13) Ground improvement techniques are _____.
- a) Compaction
 - b) Grouting
 - c) Deep Soil Mixing
 - d) All of these
- 14) What is the basis for PERT analysis?
- a) An optimistic time
 - b) A pessimistic period of time
 - c) The date that is most likely
 - d) All options mentioned above

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.
 4) Figures to the right indicates full marks.

Section – I

- Q.2 Answer the following questions (Any Two) 14**
 a) Enlist and explain various types of grade separated structures.
 b) Explain in detail 'Pipe Jacking'
 c) Enlist and explain various types of 'Tunneling Techniques' used in the construction.
- Q.3 Answer the following questions (Any Two) 14**
 a) Explain the construction process for 'Diaphragm Walls'.
 b) Explain in detail, 'Strengthening of bridges'.
 c) Enlist and explain various types of bridge bearings.

Section – II

- Q.4 Answer the following questions (Any Two) 14**
 a) Explain various types of Ground Improvement Techniques in detail.
 b) Explain in detail 'Wing Wall'.
 c) Explain in detail, 'Maintenance and management of construction equipment'.
- Q.5 Answer the following questions (Any Two) 14**
 a) Discuss methods for calculation of depreciation of construction equipment.
 b) Explain the concept of 'Work-Breakdown-Structure' (WBS).
 c) The following table shows the list of activities and their durations. Calculate the project duration and critical path of the network.

Activity	Duration (Weeks)	Depends on
A	2	-
B	4	A
C	3	A
D	6	B,C
E	7	B
F	3	D,E

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Launching girders for bridges involves the following steps _____.
 - a) Planning and Design
 - b) Fabrication
 - c) Transportation to the Site
 - d) All of these
- 2) Offshore platforms are _____.
 - a) Structure built in lake
 - b) Structure built on the sea
 - c) Structure built in the pond
 - d) All of these
- 3) Material handling is _____.
 - a) Process of change of material
 - b) Process of transporting, lifting, and placing various construction materials and equipment.
 - c) Process of finding Quality of Construction Material.
 - d) Process of finding Quantity of Construction Material
- 4) Erecting lightweight components on tall structures in bridges requires _____.
 - a) Engineering and Design
 - b) Assembly and Connection
 - c) Specialized Equipment
 - d) All of these
- 5) The cross section of a pier may be _____.
 - a) with triangular edges towards upstream and downstream sides
 - b) with curved faces on upstream and downstream sides
 - c) rectangular
 - d) all the above
- 6) Ground improvement techniques are _____.
 - a) Compaction
 - b) Grouting
 - c) Deep Soil Mixing
 - d) All of these

- 7) What is the basis for PERT analysis?
a) An optimistic time
b) A pessimistic period of time
c) The date that is most likely
d) All options mentioned above
- 8) _____ following are components of bridges.
a) Pier
b) Abutment
c) Foundation
d) All of these
- 9) Factors affecting Selection of Type of Bridge and Bridge Site are _____.
a) The nature and bed conditions of river or stream
b) Hydraulic data collected at the site
c) The climatic condition of the area
d) All of these
- 10) Abutment of Bridge is _____.
a) Foundation
b) End pier
c) Bearing
d) All of these
- 11) Types of grades separated structures are _____.
a) Overpass
b) Under pass
c) Flyover
d) All of these
- 12) Types of Bridge foundations are _____.
a) Caisson Foundation
b) Pile foundation
c) Pier Foundation
d) All of these
- 13) Steps involved in the Construction of Diaphragm Walls are _____.
a) Excavation Preparation
b) Slurry Trench
c) Concrete Pouring
d) All of these
- 14) Pipe jacking involves moving _____ to the ground.
a) Box
b) Pipe
c) both a and b
d) All of these

Seat
No.

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed & mention it clearly.
3) Draw neat sketches wherever necessary.
4) Figures to the right indicates full marks.

Section – I

- Q.2 Answer the following questions (Any Two) 14**
- Enlist and explain various types of grade separated structures.
 - Explain in detail 'Pipe Jacking'
 - Enlist and explain various types of 'Tunneling Techniques' used in the construction.
- Q.3 Answer the following questions (Any Two) 14**
- Explain the construction process for 'Diaphragm Walls'.
 - Explain in detail, 'Strengthening of bridges'.
 - Enlist and explain various types of bridge bearings.

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- Explain various types of Ground Improvement Techniques in detail.
 - Explain in detail 'Wing Wall'.
 - Explain in detail, 'Maintenance and management of construction equipment'.
- Q.5 Answer the following questions (Any Two) 14**
- Discuss methods for calculation of depreciation of construction equipment.
 - Explain the concept of 'Work-Breakdown-Structure' (WBS).
 - The following table shows the list of activities and their durations. Calculate the project duration and critical path of the network.

Activity	Duration (Weeks)	Depends on
A	2	-
B	4	A
C	3	A
D	6	B,C
E	7	B
F	3	D,E

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Erecting lightweight components on tall structures in bridges requires _____.
a) Engineering and Design b) Assembly and Connection
c) Specialized Equipment d) All of these
- 2) The cross section of a pier may be _____.
a) with triangular edges towards upstream and downstream sides
b) with curved faces on upstream and downstream sides
c) rectangular
d) all the above
- 3) Ground improvement techniques are _____.
a) Compaction b) Grouting
c) Deep Soil Mixing d) All of these
- 4) What is the basis for PERT analysis?
a) An optimistic time
b) A pessimistic period of time
c) The date that is most likely
d) All options mentioned above
- 5) _____ following are components of bridges.
a) Pier b) Abutment
c) Foundation d) All of these
- 6) Factors affecting Selection of Type of Bridge and Bridge Site are _____.
a) The nature and bed conditions of river or stream
b) Hydraulic data collected at the site
c) The climatic condition of the area
d) All of these
- 7) Abutment of Bridge is _____.
a) Foundation b) End pier
c) Bearing d) All of these

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed & mention it clearly.
3) Draw neat sketches wherever necessary.
4) Figures to the right indicates full marks.

Section – I

- Q.2 Answer the following questions (Any Two) 14**
- Enlist and explain various types of grade separated structures.
 - Explain in detail 'Pipe Jacking'
 - Enlist and explain various types of 'Tunneling Techniques' used in the construction.
- Q.3 Answer the following questions (Any Two) 14**
- Explain the construction process for 'Diaphragm Walls'.
 - Explain in detail, 'Strengthening of bridges'.
 - Enlist and explain various types of bridge bearings.

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- Explain various types of Ground Improvement Techniques in detail.
 - Explain in detail 'Wing Wall'.
 - Explain in detail, 'Maintenance and management of construction equipment'.
- Q.5 Answer the following questions (Any Two) 14**
- Discuss methods for calculation of depreciation of construction equipment.
 - Explain the concept of 'Work-Breakdown-Structure' (WBS).
 - The following table shows the list of activities and their durations. Calculate the project duration and critical path of the network.

Activity	Duration (Weeks)	Depends on
A	2	-
B	4	A
C	3	A
D	6	B,C
E	7	B
F	3	D,E

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Steps involved in the Construction of Diaphragm Walls are _____.
 - a) Excavation Preparation
 - b) Slurry Trench
 - c) Concrete Pouring
 - d) All of these
- 2) Pipe jacking involves moving _____ to the ground.
 - a) Box
 - b) Pipe
 - c) both a and b
 - d) All of these
- 3) Launching girders for bridges involves the following steps _____.
 - a) Planning and Design
 - b) Fabrication
 - c) Transportation to the Site
 - d) All of these
- 4) Offshore platforms are _____.
 - a) Structure built in lake
 - b) Structure built on the sea
 - c) Structure built in the pond
 - d) All of these
- 5) Material handling is _____.
 - a) Process of change of material
 - b) Process of transporting, lifting, and placing various construction materials and equipment.
 - c) Process of finding Quality of Construction Material.
 - d) Process of finding Quantity of Construction Material
- 6) Erecting lightweight components on tall structures in bridges requires _____.
 - a) Engineering and Design
 - b) Assembly and Connection
 - c) Specialized Equipment
 - d) All of these
- 7) The cross section of a pier may be _____.
 - a) with triangular edges towards upstream and downstream sides
 - b) with curved faces on upstream and downstream sides
 - c) rectangular
 - d) all the above

Seat
No.

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Bridge and Grade Separated Structures (BTN01718)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed & mention it clearly.
3) Draw neat sketches wherever necessary.
4) Figures to the right indicates full marks.

Section – I

- Q.2 Answer the following questions (Any Two) 14**
- Enlist and explain various types of grade separated structures.
 - Explain in detail 'Pipe Jacking'
 - Enlist and explain various types of 'Tunneling Techniques' used in the construction.
- Q.3 Answer the following questions (Any Two) 14**
- Explain the construction process for 'Diaphragm Walls'.
 - Explain in detail, 'Strengthening of bridges'.
 - Enlist and explain various types of bridge bearings.

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- Explain various types of Ground Improvement Techniques in detail.
 - Explain in detail 'Wing Wall'.
 - Explain in detail, 'Maintenance and management of construction equipment'.
- Q.5 Answer the following questions (Any Two) 14**
- Discuss methods for calculation of depreciation of construction equipment.
 - Explain the concept of 'Work-Breakdown-Structure' (WBS).
 - The following table shows the list of activities and their durations. Calculate the project duration and critical path of the network.

Activity	Duration (Weeks)	Depends on
A	2	-
B	4	A
C	3	A
D	6	B,C
E	7	B
F	3	D,E

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) Which of the following is an example of a sustainable engineering practice?
 - a) Designing products for single use and disposability
 - b) Using non renewable energy sources exclusively
 - c) Reducing waste generation and promoting recycling
 - d) All of above
- 2) Which of the following accounts for T in the IPAT equation?
 - a) Time
 - b) Threshold population
 - c) Technology
 - d) None of the above
- 3) Which of the following is the least energy efficient system?
 - a) Internal combustion engine
 - b) Fuel cell
 - c) Incandescent light
 - d) Human body
- 4) What is the main objective of sustainable engineering?
 - a) To minimize environmental impact while maximizing social and economic benefits
 - b) To maximize profits for engineering companies
 - c) To prioritize social benefits over environmental considerations
 - d) To focus solely on technological advancements
- 5) What is the 6RE philosophy in life cycle thinking?
 - a) Reduce, Remove, Replace, Recycle, Reuse, Rethink
 - b) Repair, Remove, Replace, Recycle, Reuse, Rethink
 - c) Reduce, Repair, Replace, Recycle, Reuse, Rethink
 - d) Reduce, Remove, Replace, Repair, Reuse, Rethink
- 6) Which of the following is a measure for central tendency?
 - a) Mean
 - b) Mode
 - c) Median
 - d) All of the above

- 7) Which of the following stage is not included in ISO-14040 framework for life cycle assessment?
- Life Cycle Impact Assessment (LCIA)
 - Goal and Scope Definition
 - Life Cycle Enhancement (LCE)
 - Life Cycle Inventory (LCI)
- 8) What is the significance of impact category and damage category in impact assessment approaches?
- Damage category causes more severe effect than impact category
 - Damage category is only considered when impact category could not evaluate actual impact
 - Damage category is assessed by weighing the impacts from impact categories and indicates the ultimate harm to environment and human
 - None of the above
- 9) Which of the following is a common database used during LCA?
- Economic database
 - Ecological database
 - Ecocycle database
 - Ecoinvent database
- 10) What are the limitations of LCA?
- Only environmental impact is accounted, socioeconomic aspects are not assessed
 - LCA depends on data quality
 - LCA provides global perspective
 - a) & b)
- 11) Basel Convention is related to: _____.
- Earth Summit
 - Ozone Layer Depletion
 - Sustainable Development
 - Transboundary Movement of Hazardous Wastes
- 12) What is the main source for the formation of wind?
- Uneven land
 - Sun
 - Vegetation
 - Seasons
- 13) Biomass is useful to produce _____.
- Chemicals
 - Fibres
 - Biochemicals
 - Transportation fuels
- 14) UNCED stands for: _____.
- United Nations Conference on Environment and Development
 - United Nations Conference on Economical Development
 - United Nations Confederation on Environment and Development
 - United Nations Confederation on Economy and Development

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 2 compulsory in section I, and solve any two questions from remaining.
2) Q. No. 6 is compulsory in section II, and solve any two questions from remaining.
3) Figures to right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | |
|------------|------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Analyse nexus between Technology and Sustainable development. | 05 |
| | b) Compare Social, environmental and economic sustainability concepts for Solapur city. | 05 |
| Q.3 | a) Discuss reuse of concrete as construction materials in detail. | 05 |
| | b) Illustrate zero waste concept in detail. | 04 |
| Q.4 | a) Categorize Clean Development Mechanism in detail. | 05 |
| | b) Inspect connection between sustainability concepts and sustainability development. | 04 |
| Q.5 | a) Illustrate global warming concept in detail. | 05 |
| | b) Analyse numerous effects of climate change in detail. | 04 |

Section – II

- | | | |
|------------|----------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Categorize frame work and benefits of ISO 14001:2015 in detail. | 05 |
| | b) Intercept effects Circular economy in planning of city. | 05 |
| Q.7 | a) Categorize numerous effects of ozone layer depletion in modern world. | 05 |
| | b) Explain legal provisions for environmental protection in India in brief. | 04 |
| Q.8 | a) Intercept symbiosis of ecology and industrial development in preserving the environment. | 05 |
| | b) Discuss Liquid flat Plate collector with a neat diagram. | 04 |
| Q.9 | a) Define and explain conventional and non-conventional energy resources in detail. | 05 |
| | b) Categorize numerous practices following in maintaining the sustainable city in general. | 04 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) What is the significance of impact category and damage category in impact assessment approaches?
 - a) Damage category causes more severe effect than impact category
 - b) Damage category is only considered when impact category could not evaluate actual impact
 - c) Damage category is assessed by weighing the impacts from impact categories and indicates the ultimate harm to environment and human
 - d) None of the above
- 2) Which of the following is a common database used during LCA?
 - a) Econscious database
 - b) Ecologistics database
 - c) Ecocycle database
 - d) Ecoinvent database
- 3) What are the limitations of LCA?
 - a) Only environmental impact is accounted, socioeconomic aspects are not assessed
 - b) LCA depends on data quality
 - c) LCA provides global perspective
 - d) a) & b)
- 4) Basel Convention is related to: _____.
 - a) Earth Summit
 - b) Ozone Layer Depletion
 - c) Sustainable Development
 - d) Transboundary Movement of Hazardous Wastes
- 5) What is the main source for the formation of wind?
 - a) Uneven land
 - b) Sun
 - c) Vegetation
 - d) Seasons
- 6) Biomass is useful to produce _____.
 - a) Chemicals
 - b) Fibres
 - c) Biochemicals
 - d) Transportation fuels

- 7) UNCED stands for: _____.
- United Nations Conference on Environment and Development
 - United Nations Conference on Economical Development
 - United Nations Confederation on Environment and Development
 - United Nations Confederation on Economy and Development
- 8) Which of the following is an example of a sustainable engineering practice?
- Designing products for single use and disposability
 - Using non renewable energy sources exclusively
 - Reducing waste generation and promoting recycling
 - All of above
- 9) Which of the following accounts for T in the IPAT equation?
- Time
 - Threshold population
 - Technology
 - None of the above
- 10) Which of the following is the least energy efficient system?
- Internal combustion engine
 - Fuel cell
 - Incandescent light
 - Human body
- 11) What is the main objective of sustainable engineering?
- To minimize environmental impact while maximizing social and economic benefits
 - To maximize profits for engineering companies
 - To prioritize social benefits over environmental considerations
 - To focus solely on technological advancements
- 12) What is the 6RE philosophy in life cycle thinking?
- Reduce, Remove, Replace, Recycle, Reuse, Rethink
 - Repair, Remove, Replace, Recycle, Reuse, Rethink
 - Reduce, Repair, Replace, Recycle, Reuse, Rethink
 - Reduce, Remove, Replace, Repair, Reuse, Rethink
- 13) Which of the following is a measure for central tendency?
- Mean
 - Mode
 - Median
 - All of the above
- 14) Which of the following stage is not included in ISO-14040 framework for life cycle assessment?
- Life Cycle Impact Assessment (LCIA)
 - Goal and Scope Definition
 - Life Cycle Enhancement (LCE)
 - Life Cycle Inventory (LCI)

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 2 compulsory in section I, and solve any two questions from remaining.
2) Q. No. 6 is compulsory in section II, and solve any two questions from remaining.
3) Figures to right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|----|--------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Analyse nexus between Technology and Sustainable development. | 05 |
| | b) | Compare Social, environmental and economic sustainability concepts for Solapur city. | 05 |
| Q.3 | a) | Discuss reuse of concrete as construction materials in detail. | 05 |
| | b) | Illustrate zero waste concept in detail. | 04 |
| Q.4 | a) | Categorize Clean Development Mechanism in detail. | 05 |
| | b) | Inspect connection between sustainability concepts and sustainability development. | 04 |
| Q.5 | a) | Illustrate global warming concept in detail. | 05 |
| | b) | Analyse numerous effects of climate change in detail. | 04 |

Section – II

- | | | | |
|------------|----|------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Categorize frame work and benefits of ISO 14001:2015 in detail. | 05 |
| | b) | Intercept effects Circular economy in planning of city. | 05 |
| Q.7 | a) | Categorize numerous effects of ozone layer depletion in modern world. | 05 |
| | b) | Explain legal provisions for environmental protection in India in brief. | 04 |
| Q.8 | a) | Intercept symbiosis of ecology and industrial development in preserving the environment. | 05 |
| | b) | Discuss Liquid flat Plate collector with a neat diagram. | 04 |
| Q.9 | a) | Define and explain conventional and non-conventional energy resources in detail. | 05 |
| | b) | Categorize numerous practices following in maintaining the sustainable city in general. | 04 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) Basel Convention is related to: _____.
 - a) Earth Summit
 - b) Ozone Layer Depletion
 - c) Sustainable Development
 - d) Transboundary Movement of Hazardous Wastes
- 2) What is the main source for the formation of wind?
 - a) Uneven land
 - b) Sun
 - c) Vegetation
 - d) Seasons
- 3) Biomass is useful to produce _____.
 - a) Chemicals
 - b) Fibres
 - c) Biochemicals
 - d) Transportation fuels
- 4) UNCED stands for: _____.
 - a) United Nations Conference on Environment and Development
 - b) United Nations Conference on Economical Development
 - c) United Nations Confederation on Environment and Development
 - d) United Nations Confederation on Economy and Development
- 5) Which of the following is an example of a sustainable engineering practice?
 - a) Designing products for single use and disposability
 - b) Using non renewable energy sources exclusively
 - c) Reducing waste generation and promoting recycling
 - d) All of above
- 6) Which of the following accounts for T in the IPAT equation?
 - a) Time
 - b) Threshold population
 - c) Technology
 - d) None of the above
- 7) Which of the following is the least energy efficient system?
 - a) Internal combustion engine
 - b) Fuel cell
 - c) Incandescent light
 - d) Human body

- 8) What is the main objective of sustainable engineering?
- a) To minimize environmental impact while maximizing social and economic benefits
 - b) To maximize profits for engineering companies
 - c) To prioritize social benefits over environmental considerations
 - d) To focus solely on technological advancements
- 9) What is the 6RE philosophy in life cycle thinking?
- a) Reduce, Remove, Replace, Recycle, Reuse, Rethink
 - b) Repair, Remove, Replace, Recycle, Reuse, Rethink
 - c) Reduce, Repair, Replace, Recycle, Reuse, Rethink
 - d) Reduce, Remove, Replace, Repair, Reuse, Rethink
- 10) Which of the following is a measure for central tendency?
- a) Mean
 - b) Mode
 - c) Median
 - d) All of the above
- 11) Which of the following stage is not included in ISO-14040 framework for life cycle assessment?
- a) Life Cycle Impact Assessment (LCIA)
 - b) Goal and Scope Definition
 - c) Life Cycle Enhancement (LCE)
 - d) Life Cycle Inventory (LCI)
- 12) What is the significance of impact category and damage category in impact assessment approaches?
- a) Damage category causes more severe effect than impact category
 - b) Damage category is only considered when impact category could not evaluate actual impact
 - c) Damage category is assessed by weighing the impacts from impact categories and indicates the ultimate harm to environment and human
 - d) None of the above
- 13) Which of the following is a common database used during LCA?
- a) Ecoinvent database
 - b) Ecologistics database
 - c) Ecocycle database
 - d) Ecoinvent database
- 14) What are the limitations of LCA?
- a) Only environmental impact is accounted, socioeconomic aspects are not assessed
 - b) LCA depends on data quality
 - c) LCA provides global perspective
 - d) a) & b)

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 2 compulsory in section I, and solve any two questions from remaining.
2) Q. No. 6 is compulsory in section II, and solve any two questions from remaining.
3) Figures to right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|----|--------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Analyse nexus between Technology and Sustainable development. | 05 |
| | b) | Compare Social, environmental and economic sustainability concepts for Solapur city. | 05 |
| Q.3 | a) | Discuss reuse of concrete as construction materials in detail. | 05 |
| | b) | Illustrate zero waste concept in detail. | 04 |
| Q.4 | a) | Categorize Clean Development Mechanism in detail. | 05 |
| | b) | Inspect connection between sustainability concepts and sustainability development. | 04 |
| Q.5 | a) | Illustrate global warming concept in detail. | 05 |
| | b) | Analyse numerous effects of climate change in detail. | 04 |

Section – II

- | | | | |
|------------|----|------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Categorize frame work and benefits of ISO 14001:2015 in detail. | 05 |
| | b) | Intercept effects Circular economy in planning of city. | 05 |
| Q.7 | a) | Categorize numerous effects of ozone layer depletion in modern world. | 05 |
| | b) | Explain legal provisions for environmental protection in India in brief. | 04 |
| Q.8 | a) | Intercept symbiosis of ecology and industrial development in preserving the environment. | 05 |
| | b) | Discuss Liquid flat Plate collector with a neat diagram. | 04 |
| Q.9 | a) | Define and explain conventional and non-conventional energy resources in detail. | 05 |
| | b) | Categorize numerous practices following in maintaining the sustainable city in general. | 04 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) Which of the following is a measure for central tendency?
 - a) Mean
 - b) Mode
 - c) Median
 - d) All of the above

- 2) Which of the following stage is not included in ISO-14040 framework for life cycle assessment?
 - a) Life Cycle Impact Assessment (LCIA)
 - b) Goal and Scope Definition
 - c) Life Cycle Enhancement (LCE)
 - d) Life Cycle Inventory (LCI)

- 3) What is the significance of impact category and damage category in impact assessment approaches?
 - a) Damage category causes more severe effect than impact category
 - b) Damage category is only considered when impact category could not evaluate actual impact
 - c) Damage category is assessed by weighing the impacts from impact categories and indicates the ultimate harm to environment and human
 - d) None of the above

- 4) Which of the following is a common database used during LCA?
 - a) Econscious database
 - b) Ecologistics database
 - c) Ecocycle database
 - d) Ecoinvent database

- 5) What are the limitations of LCA?
 - a) Only environmental impact is accounted, socioeconomic aspects are not assessed
 - b) LCA depends on data quality
 - c) LCA provides global perspective
 - d) a) & b)

- 6) Basel Convention is related to: _____.
- Earth Summit
 - Ozone Layer Depletion
 - Sustainable Development
 - Transboundary Movement of Hazardous Wastes
- 7) What is the main source for the formation of wind?
- Uneven land
 - Sun
 - Vegetation
 - Seasons
- 8) Biomass is useful to produce _____.
- Chemicals
 - Fibres
 - Biochemicals
 - Transportation fuels
- 9) UNCED stands for: _____.
- United Nations Conference on Environment and Development
 - United Nations Conference on Economical Development
 - United Nations Confederation on Environment and Development
 - United Nations Confederation on Economy and Development
- 10) Which of the following is an example of a sustainable engineering practice?
- Designing products for single use and disposability
 - Using non renewable energy sources exclusively
 - Reducing waste generation and promoting recycling
 - All of above
- 11) Which of the following accounts for T in the IPAT equation?
- Time
 - Threshold population
 - Technology
 - None of the above
- 12) Which of the following is the least energy efficient system?
- Internal combustion engine
 - Fuel cell
 - Incandescent light
 - Human body
- 13) What is the main objective of sustainable engineering?
- To minimize environmental impact while maximizing social and economic benefits
 - To maximize profits for engineering companies
 - To prioritize social benefits over environmental considerations
 - To focus solely on technological advancements
- 14) What is the 6RE philosophy in life cycle thinking?
- Reduce, Remove, Replace, Recycle, Reuse, Rethink
 - Repair, Remove, Replace, Recycle, Reuse, Rethink
 - Reduce, Repair, Replace, Recycle, Reuse, Rethink
 - Reduce, Remove, Replace, Repair, Reuse, Rethink

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Sustainable Engineering & Technology (BTN01719)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 2 compulsory in section I, and solve any two questions from remaining.
2) Q. No. 6 is compulsory in section II, and solve any two questions from remaining.
3) Figures to right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|----|--------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Analyse nexus between Technology and Sustainable development. | 05 |
| | b) | Compare Social, environmental and economic sustainability concepts for Solapur city. | 05 |
| Q.3 | a) | Discuss reuse of concrete as construction materials in detail. | 05 |
| | b) | Illustrate zero waste concept in detail. | 04 |
| Q.4 | a) | Categorize Clean Development Mechanism in detail. | 05 |
| | b) | Inspect connection between sustainability concepts and sustainability development. | 04 |
| Q.5 | a) | Illustrate global warming concept in detail. | 05 |
| | b) | Analyse numerous effects of climate change in detail. | 04 |

Section – II

- | | | | |
|------------|----|------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Categorize frame work and benefits of ISO 14001:2015 in detail. | 05 |
| | b) | Intercept effects Circular economy in planning of city. | 05 |
| Q.7 | a) | Categorize numerous effects of ozone layer depletion in modern world. | 05 |
| | b) | Explain legal provisions for environmental protection in India in brief. | 04 |
| Q.8 | a) | Intercept symbiosis of ecology and industrial development in preserving the environment. | 05 |
| | b) | Discuss Liquid flat Plate collector with a neat diagram. | 04 |
| Q.9 | a) | Define and explain conventional and non-conventional energy resources in detail. | 05 |
| | b) | Categorize numerous practices following in maintaining the sustainable city in general. | 04 |

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry one marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) _____ is set of components that work together for overall objectives.

a) System	b) Goals
c) Objective	d) None of these
- 2) _____ is termed as performance measure, simply an objective that stated in measurable terms.

a) Measure of Effectiveness	b) Dimension
c) Planning	d) None
- 3) Which of the following is not property desired MOE?

a) Appropriateness	b) Measurability
c) Realistic	d) Cost Saving
- 4) The super systems are _____.

a) Higher level systems	b) Lower level systems
c) Both	d) None of these
- 5) _____ models describe the amount of money needed to undertake specific action.

a) Demand	b) Cost
c) Real	d) Supply
- 6) Which of the following is tool for task of description?

a) Probability	b) Statistics
c) Economics	d) All of the above
- 7) _____ models are that use the mathematics of decision making to choose a course of action, design or policy.

a) Prescriptive	b) Descriptive
c) Analog	d) Real
- 8) _____ provides basis for predicting the need for proposed civil system.

a) Planning	b) Need Assessment
c) Controlling	d) None

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Use of non-programmable calculator is allowed.

Section – I

- Q.2 Solve any four of following. 28**
- a) Explain various classification of system.
 - b) Explain hierarchy of desired outcomes: Values, Goals, Objectives.
 - c) Classify different models with examples.
 - d) Explain Traditional tasks of analyzing systems in civil engineering.
 - e) Explain examples of tasks at each phase of civil system development.
 - f) Explain development of civil engineering system.

Section – II

- Q.3 Solve any four of following. 28**
- a) Explain engineering design process in detail with sketch.
 - b) Explain process for system planning.
 - c) i) Explain assessment of system needs.
ii) Explain Initial vs Recurring needs & Growing vs Sudden needs.
 - d) Explain classification of engineering design with examples.
 - e) Explain various principles of planning in detail.
 - f) Explain various of mechanisms for need assessment of system.

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry one marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) _____ provides basis for predicting the need for proposed civil system.
 - a) Planning
 - b) Need Assessment
 - c) Controlling
 - d) None
- 2) A _____ may be defined as deficiency, an unfulfilled requirement, lack of product that is necessary.
 - a) Supply
 - b) Need
 - c) None
 - d) All of these
- 3) Which of the following is the stakeholder of system?
 - a) Users
 - b) Community
 - c) System Owner
 - d) All
- 4) From _____ perspective, the system inputs considered in system planning could have short term, moderate term & long term effects.
 - a) Temporal
 - b) Operational
 - c) Phase
 - d) None
- 5) Which of the following is classification of design?
 - a) Selection Design
 - b) Configuration Design
 - c) Both of the above
 - d) None of the above
- 6) In Preliminary Design, analysis & evaluation of design is done on _____ stage.
 - a) Detailed
 - b) Conceptual
 - c) Multiple
 - d) Preliminary
- 7) In _____ design, analysis & evaluation of alternative designs is done in details.
 - a) Conceptual
 - b) Preliminary
 - c) Detailed
 - d) None
- 8) _____ is set of components that work together for overall objectives.
 - a) System
 - b) Goals
 - c) Objective
 - d) None of these
- 9) _____ is termed as performance measure, simply an objective that stated in measurable terms.
 - a) Measure of Effectiveness
 - b) Dimension
 - c) Planning
 - d) None

- 10) Which of the following is not property desired MOE?
a) Appropriateness b) Measurability
c) Realistic d) Cost Saving
- 11) The super systems are _____.
a) Higher level systems b) Lower level systems
c) Both d) None of these
- 12) _____ models describe the amount of money needed to undertake specific action.
a) Demand b) Cost
c) Real d) Supply
- 13) Which of the following is tool for task of description?
a) Probability b) Statistics
c) Economics d) All of the above
- 14) _____ models are that use the mathematics of decision making to choose a course of action, design or policy.
a) Prescriptive b) Descriptive
c) Analog d) Real

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Use of non-programmable calculator is allowed.

Section – I

Q.2 Solve any four of following. 28

- a) Explain various classification of system.
- b) Explain hierarchy of desired outcomes: Values, Goals, Objectives.
- c) Classify different models with examples.
- d) Explain Traditional tasks of analyzing systems in civil engineering.
- e) Explain examples of tasks at each phase of civil system development.
- f) Explain development of civil engineering system.

Section – II

Q.3 Solve any four of following. 28

- a) Explain engineering design process in detail with sketch.
- b) Explain process for system planning.
- c) i) Explain assessment of system needs.
ii) Explain Initial vs Recurring needs & Growing vs Sudden needs.
- d) Explain classification of engineering design with examples.
- e) Explain various principles of planning in detail.
- f) Explain various of mechanisms for need assessment of system.

Seat No.	
-------------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry one marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) From _____ perspective, the system inputs considered in system planning could have short term, moderate term & long term effects.
 - a) Temporal
 - b) Operational
 - c) Phase
 - d) None
- 2) Which of the following is classification of design?
 - a) Selection Design
 - b) Configuration Design
 - c) Both of the above
 - d) None of the above
- 3) In Preliminary Design, analysis & evaluation of design is done on _____ stage.
 - a) Detailed
 - b) Conceptual
 - c) Multiple
 - d) Preliminary
- 4) In _____ design, analysis & evaluation of alternative designs is done in details.
 - a) Conceptual
 - b) Preliminary
 - c) Detailed
 - d) None
- 5) _____ is set of components that work together for overall objectives.
 - a) System
 - b) Goals
 - c) Objective
 - d) None of these
- 6) _____ is termed as performance measure, simply an objective that stated in measurable terms.
 - a) Measure of Effectiveness
 - b) Dimension
 - c) Planning
 - d) None
- 7) Which of the following is not property desired MOE?
 - a) Appropriateness
 - b) Measurability
 - c) Realistic
 - d) Cost Saving
- 8) The super systems are _____.
 - a) Higher level systems
 - b) Lower level systems
 - c) Both
 - d) None of these
- 9) _____ models describe the amount of money needed to undertake specific action.
 - a) Demand
 - b) Cost
 - c) Real
 - d) Supply

Seat No.	
-----------------	--

Set R**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING****Civil Engineering System Analysis and Design (BTN01720)**

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Use of non-programmable calculator is allowed.

Section – I**Q.2 Solve any four of following. 28**

- a) Explain various classification of system.
- b) Explain hierarchy of desired outcomes: Values, Goals, Objectives.
- c) Classify different models with examples.
- d) Explain Traditional tasks of analyzing systems in civil engineering.
- e) Explain examples of tasks at each phase of civil system development.
- f) Explain development of civil engineering system.

Section – II**Q.3 Solve any four of following. 28**

- a) Explain engineering design process in detail with sketch.
- b) Explain process for system planning.
- c) i) Explain assessment of system needs.
ii) Explain Initial vs Recurring needs & Growing vs Sudden needs.
- d) Explain classification of engineering design with examples.
- e) Explain various principles of planning in detail.
- f) Explain various of mechanisms for need assessment of system.

Seat No.	
-------------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each MCQ carry one marks.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following is tool for task of description?

a) Probability	b) Statistics
c) Economics	d) All of the above
- 2) _____ models are that use the mathematics of decision making to choose a course of action, design or policy.

a) Prescriptive	b) Descriptive
c) Analog	d) Real
- 3) _____ provides basis for predicting the need for proposed civil system.

a) Planning	b) Need Assessment
c) Controlling	d) None
- 4) A _____ may be defined as deficiency, an unfulfilled requirement, lack of product that is necessary.

a) Supply	b) Need
c) None	d) All of these
- 5) Which of the following is the stakeholder of system?

a) Users	b) Community
c) System Owner	d) All
- 6) From _____ perspective, the system inputs considered in system planning could have short term, moderate term & long term effects.

a) Temporal	b) Operational
c) Phase	d) None
- 7) Which of the following is classification of design?

a) Selection Design	b) Configuration Design
c) Both of the above	d) None of the above
- 8) In Preliminary Design, analysis & evaluation of design is done on _____ stage.

a) Detailed	b) Conceptual
c) Multiple	d) Preliminary

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Civil Engineering System Analysis and Design (BTN01720)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Use of non-programmable calculator is allowed.

Section – I

- Q.2 Solve any four of following. 28**
- a) Explain various classification of system.
 - b) Explain hierarchy of desired outcomes: Values, Goals, Objectives.
 - c) Classify different models with examples.
 - d) Explain Traditional tasks of analyzing systems in civil engineering.
 - e) Explain examples of tasks at each phase of civil system development.
 - f) Explain development of civil engineering system.

Section – II

- Q.3 Solve any four of following. 28**
- a) Explain engineering design process in detail with sketch.
 - b) Explain process for system planning.
 - c) i) Explain assessment of system needs.
ii) Explain Initial vs Recurring needs & Growing vs Sudden needs.
 - d) Explain classification of engineering design with examples.
 - e) Explain various principles of planning in detail.
 - f) Explain various of mechanisms for need assessment of system.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) The Damp Proof Course (D.P.C.) is measured in _____.
 - a) Cub.m.
 - b) Sq.m.
 - c) Metres
 - d) None of these
- 2) The excavation exceeding 1.5 m in width and 10 sq.m, in plan area with a depth not exceeding 30 cm, is termed as _____.
 - a) Excavation
 - b) Surface dressing
 - c) Cutting
 - d) Surface excavation
- 3) In normal circumstances, minimum period before striking vertical formwork of columns, beams shall be _____.
 - a) 16-24 Hr.
 - b) 7 days
 - c) 14 days
 - d) 21 days
- 4) In rate analysis, salary of technical personnel engaged for the work are covered in _____.
 - a) Labour cost
 - b) General overheads
 - c) Job overheads
 - d) Contingencies
- 5) During the execution of project, structural modifications are required or addition work is added for construction. The estimate for additional work is called _____.
 - a) Preliminary estimate
 - b) Supplementary estimate
 - c) Revised estimate
 - d) Detailed estimate
- 6) We prepare revised estimate against the original estimate due to change in _____.
 - a) the rate of material or change in specification of materials
 - b) structural drawing
 - c) additional items
 - d) all the above

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q.2 is compulsory; answer any two from remaining questions from Section - I.
2) Q.6 is compulsory; answer any two from remaining questions from Section - II.
3) Figures to the right indicate full marks.
4) Assume suitable data if required and state it clearly. Section-I

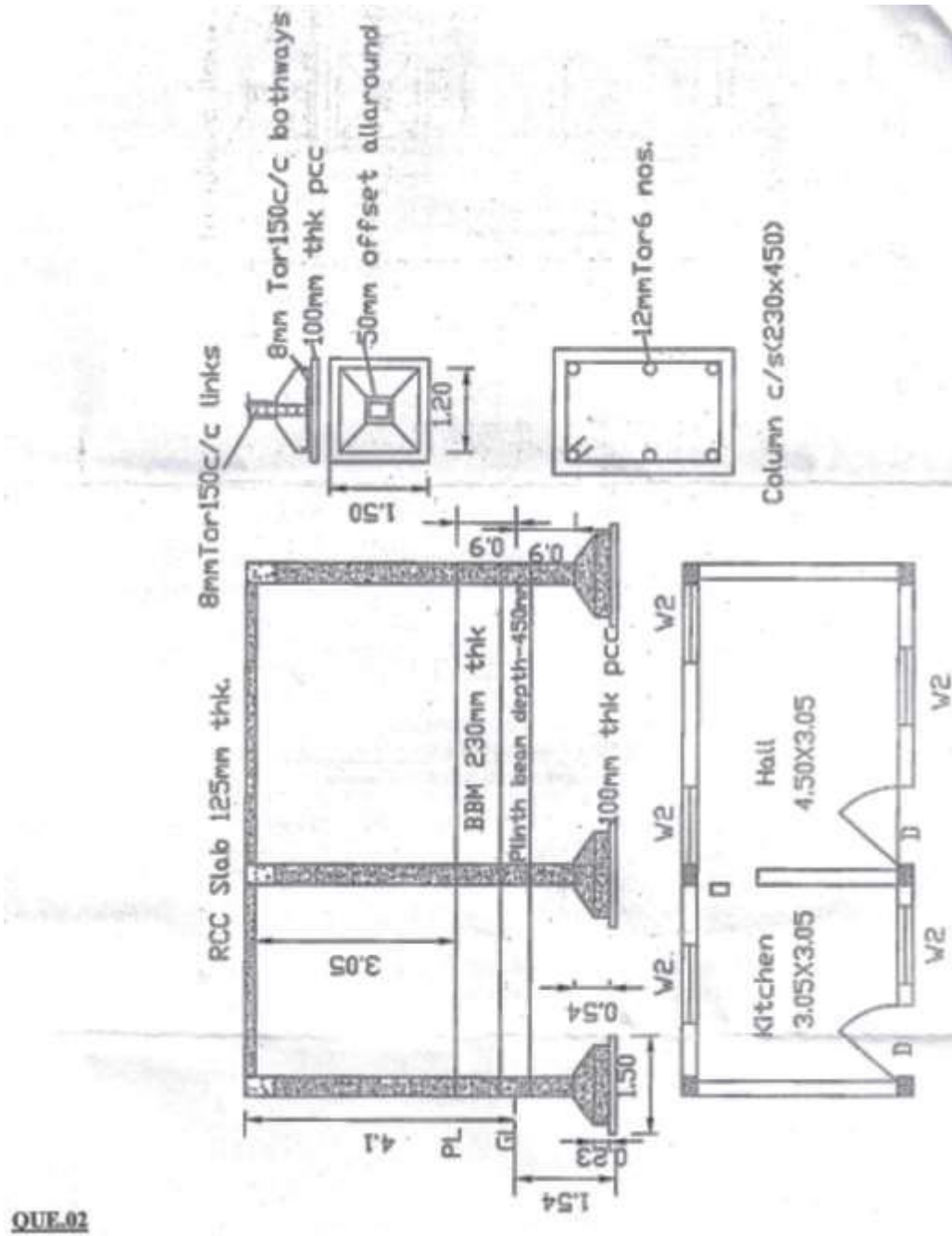
Section – I

- | | | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Calculate the quantity of reinforcement required in R.C.C. column and footing shown in attached drawing: | 08 |
| | b) Also prepare an Abstract sheet for these items by assuming suitable market rates. | 04 |
| Q.3 | a) What is the Cost Control Technique? Explain all Cost Control Techniques. | 04 |
| | b) Calculate Years Purchase for a property with a useful life of 25 years if rate of interest is 6.50 % per year. Assume rate of interest for sinking fund as 2.80 %. | 04 |
| Q.4 | a) Explain General and Detailed Specification. | 04 |
| | b) Write the detailed specifications for Water Bound Macadam. | 04 |
| Q.5 | a) What is the Rate analysis? Explain the factors affecting rate analysis. | 04 |
| | b) Carry out rate analysis for external plastering 20 mm thick in cement mortar 1:4. | 04 |

Section – II

- | | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Prepare a tender notice for the work of construction of a hospital of 120 beds capacity RCC structure of 12,000 Sq. ft built up area. Make suitable assumptions for required data. | 08 |
| | b) Write a short note on BOT projects with suitable example. | 04 |
| Q.7 | a) Explain following Acts.
1) Minimum Wages Act
2) Workers Compensation Act | 04 |
| | b) Write advantages and disadvantages of Item Rate Contract. | 04 |
| Q.8 | a) Explain different types of values - Market value, Potential value, distress value. | 04 |
| | b) Compare following methods of calculating depreciation.
- Straight line method & declining balance method. | 04 |

- Q.9 a) Explain belting method of valuation. 04
 b) Enlist and explain the 'Factors affecting valuation of properties. 04



Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Earnest money is paid to enable the Government to ensure that a tenderer does not _____.
 - a) back out of his tender before its acceptance
 - b) refuse to execute the work after it has been awarded to him
 - c) compromise with quality of work
 - d) a or b
- 2) For labour component the escalation rise will be payable based on _____.
 - a) Increase in the minimum wages of unskilled male mazdoor
 - b) Increase in the actual wages of unskilled male mazdoor
 - c) Increase in the minimum wages of skilled male mazdoor
 - d) Increase in the actual wages of skilled male mazdoor
- 3) 'Money received today is more worth than money received in future' is based on which of the following term _____.

a) Time Value of money	b) Storage Value of Money
c) Time Machine	d) Cash Value of Machine
- 4) The net present value (NPV) is _____.
 - a) equal to the sum of the present values of all cash flows
 - b) equal to the sum of returns
 - c) equal to the sum of all cash flows
 - d) none of the above
- 5) The value at the end of utility of property but without dismantling is known as _____.

a) Scrap Value	b) Salvage value
c) Market value	d) Book value

- 6) Following is not the purpose of Valuation.
- For submission to financial agency/bank while borrowing loan
 - For preparing tender documents
 - For income tax/wealth tax assessment
 - For compensation after the land acquisition
- 7) Valuation of the properties which perform non profitable community functions is done by _____.
- Rental method
 - Land and building method
 - Direct comparison method
 - Profit based method
- 8) The Damp Proof Course (D.P.C.) is measured in _____.
- Cub.m.
 - Sq.m.
 - Metres
 - None of these
- 9) The excavation exceeding 1.5 m in width and 10 sq.m, in plan area with a depth not exceeding 30 cm, is termed as _____.
- Excavation
 - Surface dressing
 - Cutting
 - Surface excavation
- 10) In normal circumstances, minimum period before striking vertical formwork of columns, beams shall be _____.
- 16-24 Hr.
 - 7 days
 - 14 days
 - 21 days
- 11) In rate analysis, salary of technical personnel engaged for the work are covered in _____.
- Labour cost
 - General overheads
 - Job overheads
 - Contingencies
- 12) During the execution of project, structural modifications are required or addition work is added for construction. The estimate for additional work is called _____.
- Preliminary estimate
 - Supplementary estimate
 - Revised estimate
 - Detailed estimate
- 13) We prepare revised estimate against the original estimate due to change in _____.
- the rate of material or change in specification of materials
 - structural drawing
 - additional items
 - all the above
- 14) If rise and tread of a step is 0.15m and 0.25m respectively, then the volume (in cubic meter) of 9 number of steps of 1 m length be recorded in measurement sheet shall be _____.
- 0.3375
 - 0.337
 - 0.34
 - 0.33

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q.2 is compulsory; answer any two from remaining questions from Section - I.
2) Q.6 is compulsory; answer any two from remaining questions from Section - II.
3) Figures to the right indicate full marks.
4) Assume suitable data if required and state it clearly. Section-I

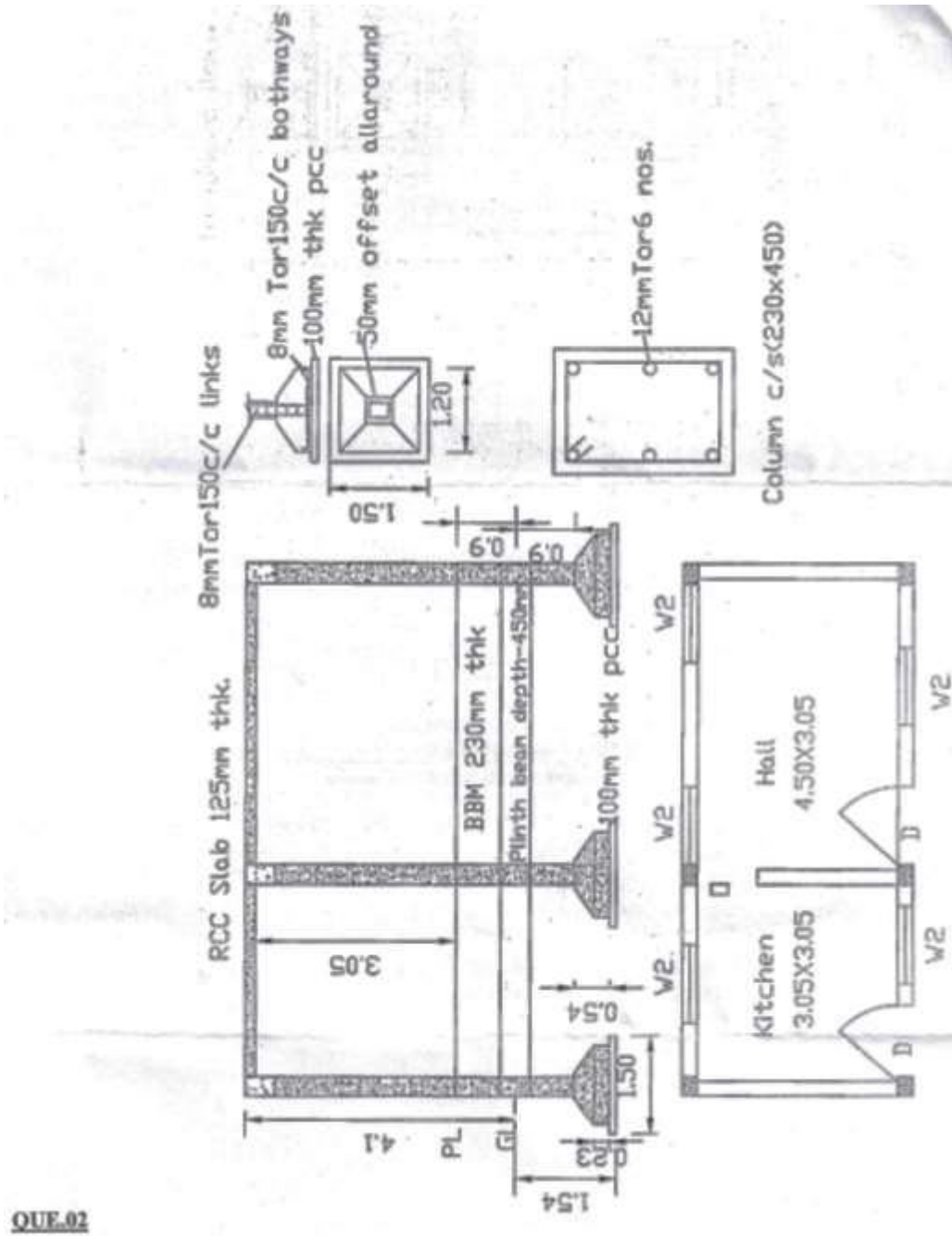
Section – I

- | | | | |
|------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Calculate the quantity of reinforcement required in R.C.C. column and footing shown in attached drawing: | 08 |
| | b) | Also prepare an Abstract sheet for these items by assuming suitable market rates. | 04 |
| Q.3 | a) | What is the Cost Control Technique? Explain all Cost Control Techniques. | 04 |
| | b) | Calculate Years Purchase for a property with a useful life of 25 years if rate of interest is 6.50 % per year. Assume rate of interest for sinking fund as 2.80 %. | 04 |
| Q.4 | a) | Explain General and Detailed Specification. | 04 |
| | b) | Write the detailed specifications for Water Bound Macadam. | 04 |
| Q.5 | a) | What is the Rate analysis? Explain the factors affecting rate analysis. | 04 |
| | b) | Carry out rate analysis for external plastering 20 mm thick in cement mortar 1:4. | 04 |

Section – II

- | | | | |
|------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Prepare a tender notice for the work of construction of a hospital of 120 beds capacity RCC structure of 12,000 Sq. ft built up area. Make suitable assumptions for required data. | 08 |
| | b) | Write a short note on BOT projects with suitable example. | 04 |
| Q.7 | a) | Explain following Acts.
1) Minimum Wages Act
2) Workers Compensation Act | 04 |
| | b) | Write advantages and disadvantages of Item Rate Contract. | 04 |
| Q.8 | a) | Explain different types of values - Market value, Potential value, distress value. | 04 |
| | b) | Compare following methods of calculating depreciation.
- Straight line method & declining balance method. | 04 |

- Q.9 a) Explain belting method of valuation. 04
 b) Enlist and explain the 'Factors affecting valuation of properties. 04



Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The net present value (NPV) is _____.
 - a) equal to the sum of the present values of all cash flows
 - b) equal to the sum of returns
 - c) equal to the sum of all cash flows
 - d) none of the above
- 2) The value at the end of utility of property but without dismantling is known as _____.
 - a) Scrap Value
 - b) Salvage value
 - c) Market value
 - d) Book value
- 3) Following is not the purpose of Valuation.
 - a) For submission to financial agency/bank while borrowing loan
 - b) For preparing tender documents
 - c) For income tax/wealth tax assessment
 - d) For compensation after the land acquisition
- 4) Valuation of the properties which perform non profitable community functions is done by _____.
 - a) Rental method
 - b) Land and building method
 - c) Direct comparison method
 - d) Profit based method
- 5) The Damp Proof Course (D.P.C.) is measured in _____.
 - a) Cub.m.
 - b) Sq.m.
 - c) Metres
 - d) None of these
- 6) The excavation exceeding 1.5 m in width and 10 sq.m, in plan area with a depth not exceeding 30 cm, is termed as _____.
 - a) Excavation
 - b) Surface dressing
 - c) Cutting
 - d) Surface excavation
- 7) In normal circumstances, minimum period before striking vertical formwork of columns, beams shall be _____.
 - a) 16-24 Hr.
 - b) 7 days
 - c) 14 days
 - d) 21 days

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q.2 is compulsory; answer any two from remaining questions from Section - I.
2) Q.6 is compulsory; answer any two from remaining questions from Section - II.
3) Figures to the right indicate full marks.
4) Assume suitable data if required and state it clearly. Section-I

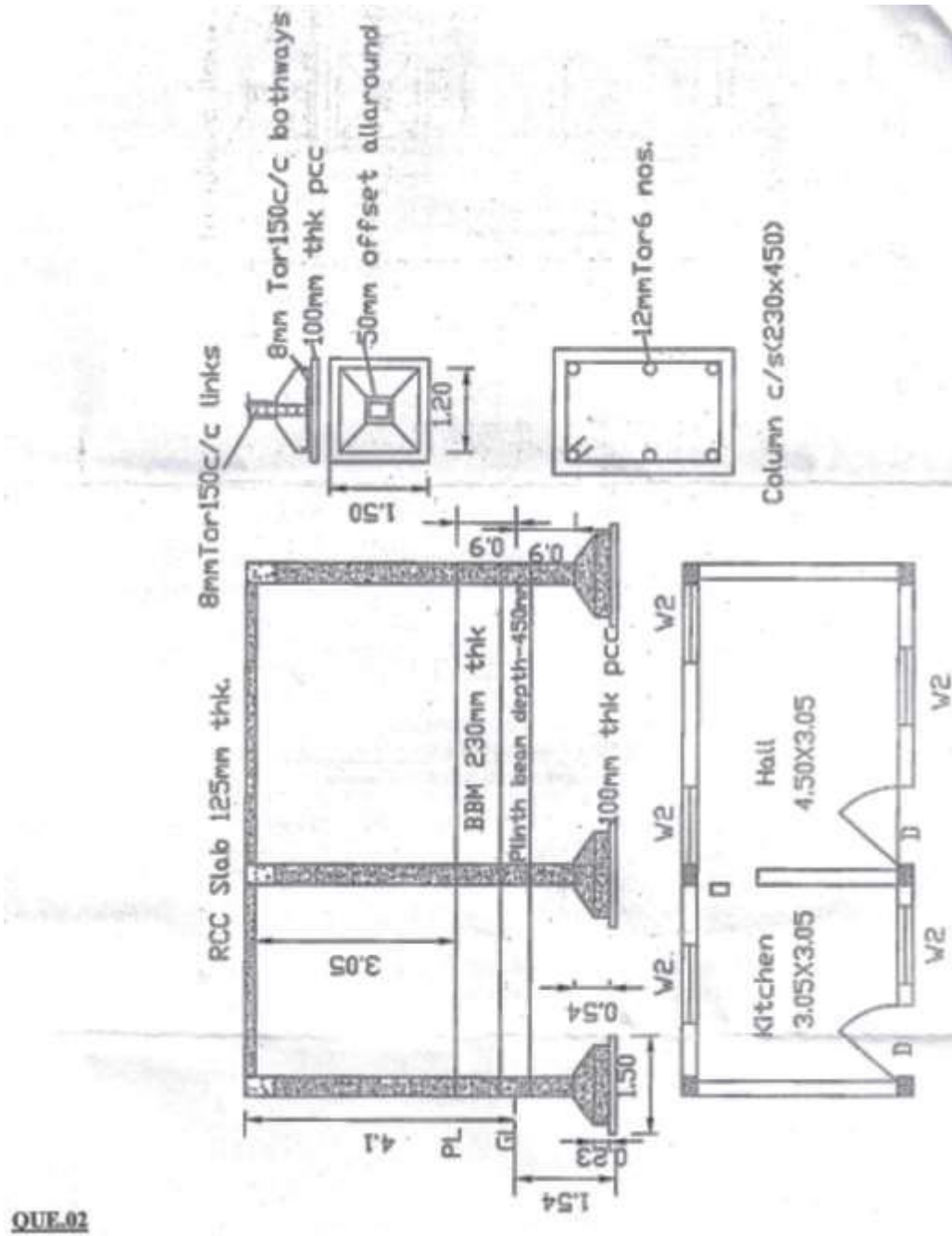
Section – I

- | | | | |
|------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Calculate the quantity of reinforcement required in R.C.C. column and footing shown in attached drawing: | 08 |
| | b) | Also prepare an Abstract sheet for these items by assuming suitable market rates. | 04 |
| Q.3 | a) | What is the Cost Control Technique? Explain all Cost Control Techniques. | 04 |
| | b) | Calculate Years Purchase for a property with a useful life of 25 years if rate of interest is 6.50 % per year. Assume rate of interest for sinking fund as 2.80 %. | 04 |
| Q.4 | a) | Explain General and Detailed Specification. | 04 |
| | b) | Write the detailed specifications for Water Bound Macadam. | 04 |
| Q.5 | a) | What is the Rate analysis? Explain the factors affecting rate analysis. | 04 |
| | b) | Carry out rate analysis for external plastering 20 mm thick in cement mortar 1:4. | 04 |

Section – II

- | | | | |
|------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Prepare a tender notice for the work of construction of a hospital of 120 beds capacity RCC structure of 12,000 Sq. ft built up area. Make suitable assumptions for required data. | 08 |
| | b) | Write a short note on BOT projects with suitable example. | 04 |
| Q.7 | a) | Explain following Acts.
1) Minimum Wages Act
2) Workers Compensation Act | 04 |
| | b) | Write advantages and disadvantages of Item Rate Contract. | 04 |
| Q.8 | a) | Explain different types of values - Market value, Potential value, distress value. | 04 |
| | b) | Compare following methods of calculating depreciation.
- Straight line method & declining balance method. | 04 |

- Q.9 a) Explain belting method of valuation. 04
 b) Enlist and explain the 'Factors affecting valuation of properties. 04



Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) We prepare revised estimate against the original estimate due to change in _____.
a) the rate of material or change in specification of materials
b) structural drawing
c) additional items
d) all the above
- 2) If rise and tread of a step is 0.15m and 0.25m respectively, then the volume (in cubic meter) of 9 number of steps of 1 m length be recorded in measurement sheet shall be _____.
a) 0.3375
b) 0.337
c) 0.34
d) 0.33
- 3) Earnest money is paid to enable the Government to ensure that a tenderer does not _____.
a) back out of his tender before its acceptance
b) refuse to execute the work after it has been awarded to him
c) compromise with quality of work
d) a or b
- 4) For labour component the escalation rise will be payable based on _____.
a) Increase in the minimum wages of unskilled male mazdoor
b) Increase in the actual wages of unskilled male mazdoor
c) Increase in the minimum wages of skilled male mazdoor
d) Increase in the actual wages of skilled male mazdoor
- 5) 'Money received today is more worth than money received in future' is based on which of the following term _____.
a) Time Value of money
b) Storage Value of Money
c) Time Machine
d) Cash Value of Machine

- 6) The net present value (NPV) is _____.
- a) equal to the sum of the present values of all cash flows
 - b) equal to the sum of returns
 - c) equal to the sum of all cash flows
 - d) none of the above
- 7) The value at the end of utility of property but without dismantling is known as _____.
- a) Scrap Value
 - b) Salvage value
 - c) Market value
 - d) Book value
- 8) Following is not the purpose of Valuation.
- a) For submission to financial agency/bank while borrowing loan
 - b) For preparing tender documents
 - c) For income tax/wealth tax assessment
 - d) For compensation after the land acquisition
- 9) Valuation of the properties which perform non profitable community functions is done by _____.
- a) Rental method
 - b) Land and building method
 - c) Direct comparison method
 - d) Profit based method
- 10) The Damp Proof Course (D.P.C.) is measured in _____.
- a) Cub.m.
 - b) Sq.m.
 - c) Metres
 - d) None of these
- 11) The excavation exceeding 1.5 m in width and 10 sq.m, in plan area with a depth not exceeding 30 cm, is termed as _____.
- a) Excavation
 - b) Surface dressing
 - c) Cutting
 - d) Surface excavation
- 12) In normal circumstances, minimum period before striking vertical formwork of columns, beams shall be _____.
- a) 16-24 Hr.
 - b) 7 days
 - c) 14 days
 - d) 21 days
- 13) In rate analysis, salary of technical personnel engaged for the work are covered in _____.
- a) Labour cost
 - b) General overheads
 - c) Job overheads
 - d) Contingencies
- 14) During the execution of project, structural modifications are required or addition work is added for construction. The estimate for additional work is called _____.
- a) Preliminary estimate
 - b) Supplementary estimate
 - c) Revised estimate
 - d) Detailed estimate

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Engineering Economics, Estimation & Costing (197042701)

Day & Date: Wednesday, 15-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q.2 is compulsory; answer any two from remaining questions from Section - I.
2) Q.6 is compulsory; answer any two from remaining questions from Section - II.
3) Figures to the right indicate full marks.
4) Assume suitable data if required and state it clearly. Section-I

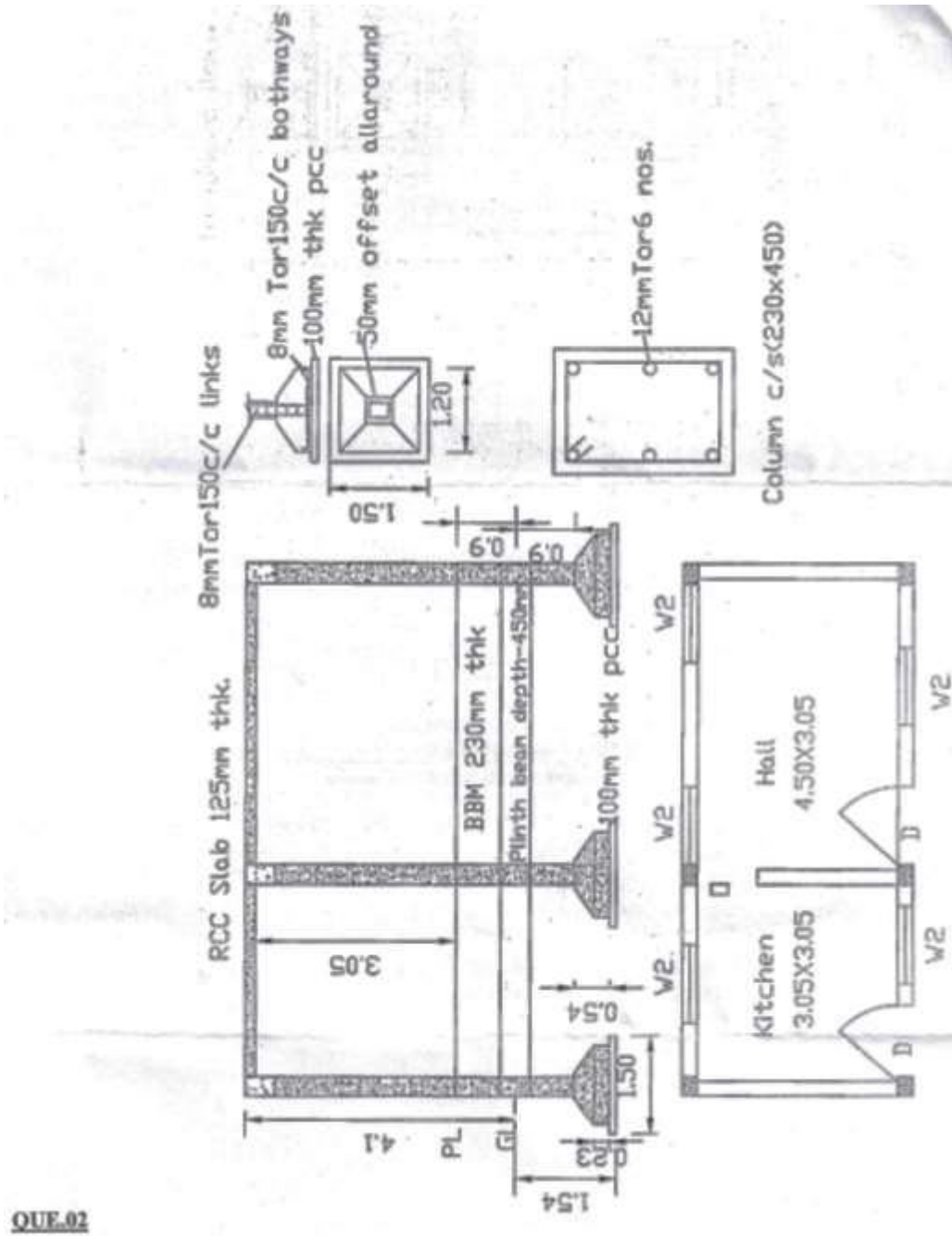
Section – I

- Q.2** a) Calculate the quantity of reinforcement required in R.C.C. column and footing shown in attached drawing: **08**
b) Also prepare an Abstract sheet for these items by assuming suitable market rates. **04**
- Q.3** a) What is the Cost Control Technique? Explain all Cost Control Techniques. **04**
b) Calculate Years Purchase for a property with a useful life of 25 years if rate of interest is 6.50 % per year. Assume rate of interest for sinking fund as 2.80 %. **04**
- Q.4** a) Explain General and Detailed Specification. **04**
b) Write the detailed specifications for Water Bound Macadam. **04**
- Q.5** a) What is the Rate analysis? Explain the factors affecting rate analysis. **04**
b) Carry out rate analysis for external plastering 20 mm thick in cement mortar 1:4. **04**

Section – II

- Q.6** a) Prepare a tender notice for the work of construction of a hospital of 120 beds capacity RCC structure of 12,000 Sq. ft built up area. Make suitable assumptions for required data. **08**
b) Write a short note on BOT projects with suitable example. **04**
- Q.7** a) Explain following Acts. **04**
1) Minimum Wages Act
2) Workers Compensation Act
b) Write advantages and disadvantages of Item Rate Contract. **04**
- Q.8** a) Explain different types of values - Market value, Potential value, distress value. **04**
b) Compare following methods of calculating depreciation. **04**
- Straight line method & declining balance method.

- Q.9 a) Explain belting method of valuation. 04
 b) Enlist and explain the 'Factors affecting valuation of properties. 04



QUE.02

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Work Break down structure helps in _____.
 - a) Identifying the activities
 - b) Identifying the functional element of a project and their interrelationship
 - c) Breaking the project into several elements
 - d) Breaking the project into system
- 2) A mile stone chart is _____.

a) Same as the bar chart	b) An improvement over the bar chart
c) Inferior to the bar chart	d) None of these
- 3) A-O-A network means _____.

a) Activity On Arrow	b) Act On Activity
c) Both a and b	d) None of these
- 4) A CPM network is _____.
 - a) Activity oriented
 - b) Event oriented
 - c) Both activity as well as event oriented
 - d) Neither activity nor event oriented
- 5) PERT (Programme Evaluation and Review Technique) is mainly useful _____.
 - a) Only small projects
 - b) Only large projects
 - c) Research and development
 - d) Small as well as large and complex projects
- 6) There is no need for updating if _____.
 - a) All the activities are not progressing according to schedule
 - b) All the activities are partially progressing according to schedule
 - c) All the activities are progressing well according to schedule
 - d) All of these

- 7) Precedence networks are more commonly used when _____.
a) Repetitive tasks are involved
b) Overlapping of activities occur
c) Interdependancies exist
d) All of these
- 8) Pessimistic Time is _____.
a) All conditions are not in favour
b) All conditions are in favour
c) Both above
d) None
- 9) Management information systems (MIS) _____.
a) create and share documents that support day-today office activities
b) process business transactions (e.g., time cards, payments, orders, etc.)
c) capture and reproduce the knowledge of an expert problem solver.
d) use the transaction data to produce information needed by managers to run the business
- 10) When you begin a new project in MS Project, you can identify its timeframe by: _____.
a) Clicking on the Calendar and setting Timeframe
b) Going to the Project tab and in the Properties, group choose Project Information
c) Going to the backstage and choosing options
d) None of above
- 11) Scraper is used for _____.
a) Scraping of soils
b) Excavation only
c) Excavation, transporting and dumping of soil
d) None of these
- 12) _____ crane is used for open sites and it possesses a very long reach.
a) Goliath
b) Derrick
c) Swing jib
d) Cable
- 13) Setting up of National Safety Counsel (NSC) in India in _____.
a) 1956
b) 1976
c) 1986
d) 1966
- 14) Bentonite slurry used in the construction of _____.
a) cantilever retaining wall
b) counterfort retaining wall
c) diaphragm wall
d) sheet piles

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory in section I.
2) All questions are compulsory in section II.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

Q.2 Attempt all of the below question.

- a) Construct the detail “Work Breakdown Structure (WBS)” for “Watch Men Cabin of Frame structure Building”. **04**
- b) Explain in brief the “Rules for construction of Network Diagram with necessary sketch”. **03**
- c) Construct “Bar Chart as well as Network Diagram” of the project and define its project duration and critical Path. **06**

Activity	Predecessor Activity	Duration (Weeks)
A	---	2
B	A	4
C	B	4
D	C	6
E	C	4
F	D, E	2

Q.3 Attempt any three from below question.

15

- a) Write down the steps involved in “Updating of Project Network Diagram”.
- b) Explain in brief the steps involved in “Network Compression of Project”.
- c) Explain in brief the about “Direct Cost, In-direct Cost and Total Project Cost” necessary graph sketch.
- d) Distinguish between the “CPM and PERT Technique”.
- e) Explain in brief use of “Project Management Software of Construction sector”.

Section – II

Q.4 Attempt all of the below question.

13

- a) Enlist the use of “Safety tools against accidents on various building construction sites”. **04**
- b) Explain the various “Safety measures to be taken on building construction sites”. **03**
- c) Explain the function of “Back Hoe” with neat sketch and labeling. **06**

Q.5 Attempt any three from below question.

- a) Explain in brief the about “Asphalt mixing and batching plant (hot mix plant),” necessary graph sketch.
- b) Enlist and explain in brief “Compactors and types Compactors”.
- c) Explain in brief the use of “Mivan Technology” in construction industries.
- d) Write a note on “Floating Equipment’s”.
- e) Explain in brief steps involved in construction of “Diaphragm Walls”.

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Pessimistic Time is _____.
 - a) All conditions are not in favour
 - b) All conditions are in favour
 - c) Both above
 - d) None
- 2) Management information systems (MIS) _____.
 - a) create and share documents that support day-to-day office activities
 - b) process business transactions (e.g., time cards, payments, orders, etc.)
 - c) capture and reproduce the knowledge of an expert problem solver.
 - d) use the transaction data to produce information needed by managers to run the business
- 3) When you begin a new project in MS Project, you can identify its timeframe by: _____.
 - a) Clicking on the Calendar and setting Timeframe
 - b) Going to the Project tab and in the Properties, group choose Project Information
 - c) Going to the backstage and choosing options
 - d) None of above
- 4) Scraper is used for _____.
 - a) Scraping of soils
 - b) Excavation only
 - c) Excavation, transporting and dumping of soil
 - d) None of these
- 5) _____ crane is used for open sites and it possesses a very long reach.
 - a) Goliath
 - b) Derrick
 - c) Swing jib
 - d) Cable

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory in section I.
2) All questions are compulsory in section II.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

Q.2 Attempt all of the below question.

- a) Construct the detail “Work Breakdown Structure (WBS)” for “Watch Men Cabin of Frame structure Building”. **04**
- b) Explain in brief the “Rules for construction of Network Diagram with necessary sketch”. **03**
- c) Construct “Bar Chart as well as Network Diagram” of the project and define its project duration and critical Path. **06**

Activity	Predecessor Activity	Duration (Weeks)
A	---	2
B	A	4
C	B	4
D	C	6
E	C	4
F	D, E	2

Q.3 Attempt any three from below question.

15

- a) Write down the steps involved in “Updating of Project Network Diagram”.
- b) Explain in brief the steps involved in “Network Compression of Project”.
- c) Explain in brief the about “Direct Cost, In-direct Cost and Total Project Cost” necessary graph sketch.
- d) Distinguish between the “CPM and PERT Technique”.
- e) Explain in brief use of “Project Management Software of Construction sector”.

Section – II

Q.4 Attempt all of the below question.

13

- a) Enlist the use of “Safety tools against accidents on various building construction sites”. **04**
- b) Explain the various “Safety measures to be taken on building construction sites”. **03**
- c) Explain the function of “Back Hoe” with neat sketch and labeling. **06**

Q.5 Attempt any three from below question.

- a) Explain in brief the about “Asphalt mixing and batching plant (hot mix plant),” necessary graph sketch.
- b) Enlist and explain in brief “Compactors and types Compactors”.
- c) Explain in brief the use of “Mivan Technology” in construction industries.
- d) Write a note on “Floating Equipment’s”.
- e) Explain in brief steps involved in construction of “Diaphragm Walls”.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Scraper is used for _____.
 - a) Scraping of soils
 - b) Excavation only
 - c) Excavation, transporting and dumping of soil
 - d) None of these
- 2) _____ crane is used for open sites and it possesses a very long reach.
 - a) Goliath
 - b) Derrick
 - c) Swing jib
 - d) Cable
- 3) Setting up of National Safety Counsel (NSC) in India in _____.
 - a) 1956
 - b) 1976
 - c) 1986
 - d) 1966
- 4) Bentonite slurry used in the construction of _____.
 - a) cantilever retaining wall
 - b) counterfort retaining wall
 - c) diaphragm wall
 - d) sheet piles
- 5) Work Break down structure helps in _____.
 - a) Identifying the activities
 - b) Identifying the functional element of a project and their interrelationship
 - c) Breaking the project into several elements
 - d) Breaking the project into system
- 6) A mile stone chart is _____.
 - a) Same as the bar chart
 - b) An improvement over the bar chart
 - c) Inferior to the bar chart
 - d) None of these
- 7) A-O-A network means _____.
 - a) Activity On Arrow
 - b) Act On Activity
 - c) Both a and b
 - d) None of these

- 8) A CPM network is _____.
- Activity oriented
 - Event oriented
 - Both activity as well as event oriented
 - Neither activity nor event oriented
- 9) PERT (Programme Evaluation and Review Technique) is mainly useful _____.
- Only small projects
 - Only large projects
 - Research and development
 - Small as well as large and complex projects
- 10) There is no need for updating if _____.
- All the activities are not progressing according to schedule
 - All the activities are partially progressing according to schedule
 - All the activities are progressing well according to schedule
 - All of these
- 11) Precedence networks are more commonly used when _____.
- Repetitive tasks are involved
 - Overlapping of activities occur
 - Interdependancies exist
 - All of these
- 12) Pessimistic Time is _____.
- All conditions are not in favour
 - All conditions are in favour
 - Both above
 - None
- 13) Management information systems (MIS) _____.
- create and share documents that support day-today office activities
 - process business transactions (e.g., time cards, payments, orders, etc.)
 - capture and reproduce the knowledge of an expert problem solver.
 - use the transaction data to produce information needed by managers to run the business
- 14) When you begin a new project in MS Project, you can identify its timeframe by: _____.
- Clicking on the Calendar and setting Timeframe
 - Going to the Project tab and in the Properties, group choose Project Information
 - Going to the backstage and choosing options
 - None of above

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) All questions are compulsory in section I.
 - 2) All questions are compulsory in section II.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) Use of non-programmable calculator is allowed.

Section – I

Q.2 Attempt all of the below question.

- a) Construct the detail “Work Breakdown Structure (WBS)” for “Watch Men Cabin of Frame structure Building”. **04**
- b) Explain in brief the “Rules for construction of Network Diagram with necessary sketch”. **03**
- c) Construct “Bar Chart as well as Network Diagram” of the project and define its project duration and critical Path. **06**

Activity	Predecessor Activity	Duration (Weeks)
A	---	2
B	A	4
C	B	4
D	C	6
E	C	4
F	D, E	2

Q.3 Attempt any three from below question.

15

- a) Write down the steps involved in “Updating of Project Network Diagram”.
- b) Explain in brief the steps involved in “Network Compression of Project”.
- c) Explain in brief the about “Direct Cost, In-direct Cost and Total Project Cost” necessary graph sketch.
- d) Distinguish between the “CPM and PERT Technique”.
- e) Explain in brief use of “Project Management Software of Construction sector”.

Section – II

Q.4 Attempt all of the below question.

13

- a) Enlist the use of “Safety tools against accidents on various building construction sites”. **04**
- b) Explain the various “Safety measures to be taken on building construction sites”. **03**
- c) Explain the function of “Back Hoe” with neat sketch and labeling. **06**

Q.5 Attempt any three from below question.

- a) Explain in brief the about “Asphalt mixing and batching plant (hot mix plant),” necessary graph sketch.
- b) Enlist and explain in brief “Compactors and types Compactors”.
- c) Explain in brief the use of “Mivan Technology” in construction industries.
- d) Write a note on “Floating Equipment’s”.
- e) Explain in brief steps involved in construction of “Diaphragm Walls”.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) There is no need for updating if _____.
 - a) All the activities are not progressing according to schedule
 - b) All the activities are partially progressing according to schedule
 - c) All the activities are progressing well according to schedule
 - d) All of these
- 2) Precedence networks are more commonly used when _____.
 - a) Repetitive tasks are involved
 - b) Overlapping of activities occur
 - c) Interdependancies exist
 - d) All of these
- 3) Pessimistic Time is _____.
 - a) All conditions are not in favour
 - b) All conditions are in favour
 - c) Both above
 - d) None
- 4) Management information systems (MIS) _____.
 - a) create and share documents that support day-to-day office activities
 - b) process business transactions (e.g., time cards, payments, orders, etc.)
 - c) capture and reproduce the knowledge of an expert problem solver.
 - d) use the transaction data to produce information needed by managers to run the business
- 5) When you begin a new project in MS Project, you can identify its timeframe by: _____.
 - a) Clicking on the Calendar and setting Timeframe
 - b) Going to the Project tab and in the Properties, group choose Project Information
 - c) Going to the backstage and choosing options
 - d) None of above

- 6) Scraper is used for _____.
- a) Scraping of soils
 - b) Excavation only
 - c) Excavation, transporting and dumping of soil
 - d) None of these
- 7) _____ crane is used for open sites and it possesses a very long reach.
- a) Goliath
 - b) Derrick
 - c) Swing jib
 - d) Cable
- 8) Setting up of National Safety Counsel (NSC) in India in _____.
- a) 1956
 - b) 1976
 - c) 1986
 - d) 1966
- 9) Bentonite slurry used in the construction of _____.
- a) cantilever retaining wall
 - b) counterfort retaining wall
 - c) diaphragm wall
 - d) sheet piles
- 10) Work Break down structure helps in _____.
- a) Identifying the activities
 - b) Identifying the functional element of a project and their interrelationship
 - c) Breaking the project into several elements
 - d) Breaking the project into system
- 11) A mile stone chart is _____.
- a) Same as the bar chart
 - b) An improvement over the bar chart
 - c) Inferior to the bar chart
 - d) None of these
- 12) A-O-A network means _____.
- a) Activity On Arrow
 - b) Act On Activity
 - c) Both a and b
 - d) None of these
- 13) A CPM network is _____.
- a) Activity oriented
 - b) Event oriented
 - c) Both activity as well as event oriented
 - d) Neither activity nor event oriented
- 14) PERT (Programme Evaluation and Review Technique) is mainly useful _____.
- a) Only small projects
 - b) Only large projects
 - c) Research and development
 - d) Small as well as large and complex projects

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Construction Engineering, Management & Construction Practices
(197042702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory in section I.
2) All questions are compulsory in section II.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

Q.2 Attempt all of the below question.

- a) Construct the detail “Work Breakdown Structure (WBS)” for “Watch Men Cabin of Frame structure Building”. **04**
- b) Explain in brief the “Rules for construction of Network Diagram with necessary sketch”. **03**
- c) Construct “Bar Chart as well as Network Diagram” of the project and define its project duration and critical Path. **06**

Activity	Predecessor Activity	Duration (Weeks)
A	---	2
B	A	4
C	B	4
D	C	6
E	C	4
F	D, E	2

Q.3 Attempt any three from below question.

15

- a) Write down the steps involved in “Updating of Project Network Diagram”.
- b) Explain in brief the steps involved in “Network Compression of Project”.
- c) Explain in brief the about “Direct Cost, In-direct Cost and Total Project Cost” necessary graph sketch.
- d) Distinguish between the “CPM and PERT Technique”.
- e) Explain in brief use of “Project Management Software of Construction sector”.

Section – II

Q.4 Attempt all of the below question.

13

- a) Enlist the use of “Safety tools against accidents on various building construction sites”. **04**
- b) Explain the various “Safety measures to be taken on building construction sites”. **03**
- c) Explain the function of “Back Hoe” with neat sketch and labeling. **06**

Q.5 Attempt any three from below question.

- a) Explain in brief the about “Asphalt mixing and batching plant (hot mix plant),” necessary graph sketch.
- b) Enlist and explain in brief “Compactors and types Compactors”.
- c) Explain in brief the use of “Mivan Technology” in construction industries.
- d) Write a note on “Floating Equipment’s”.
- e) Explain in brief steps involved in construction of “Diaphragm Walls”.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions :** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) While solving MCQ IS 456-2000, IS 3370 IV, IS 1343 are not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

- Q.1 Choose the correct answer:** **14**
- 1) What is the maximum pitch for a staircase? 01
 - a) 25°
 - b) 30°
 - c) 35°
 - d) 40°
 - 2) In case of footing, the critical section for BM occurs _____. 01
 - a) At a distance of 'd/2' from face of column
 - b) At a distance of 'd' from face of column
 - c) At the face of the column
 - d) None of the above
 - 3) If W is weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding, is _____. 01
 - a) 1
 - b) 1.5
 - c) 1.25
 - d) 2
 - 4) As per IS 456:2000, in reinforced footing, Thickness at the edge of footing shall not be less than _____ for footings on soils. 01
 - a) 125 mm
 - b) 150 mm
 - c) 200 mm
 - d) 300 mm
 - 5) All are the component of retaining wall except? 01
 - a) Toe Slab
 - b) Heel Slab
 - c) Stem
 - d) Surcharge
 - 6) In water tank, for Fe₅₀₀ the permissible tensile stress is _____. 01
 - a) 130 N/mm²
 - b) 150 N/mm²
 - c) 125 N/mm²
 - d) 190 N/mm²
 - 7) A pre-tensioned concrete beam, 100 mm wide and 300 mm deep in prestressed by straight wires and modulus of elasticity of steel and concrete are 210 and 35 N/mm². Find modular ratio _____. 01
 - a) 14
 - b) 7
 - c) 6
 - d) 10

Seat No.	
-------------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Draw neat sketches where required and assume suitable data if required and state it clearly.
 - 5) IS 456, IS1343, IS 3370 Part IV and non-programmable calculator are allowed.

Section – I

- Q.2** Design a dog-legged type staircase for a residential building using following data: **08**
- a) floor to floor height = 3.6 m
 - b) size of steps: Riser = 180 mm and tread = 250 mm
 - c) LL = 3.2 KN/m²
 - d) assume width of stair = 1 m
 - e) Material – M 20, Fe 415
 - f) width of beams = 300 mm
- The stair is supported at top and bottom risers by beam spanning parallel with risers at the landing slab on either side. Sketch the reinforcement details.
- Q.3** A rectangular column 400 mm × 600 mm carries an axial load of 2000 kN. The SBC of soil is 150 kN/ m². Using M20 concrete and Fe 415 steel, design a rectangular footing to support the column. Sketch the reinforcement details. **10**
- Q.4** Design the stem slab of a cantilever retaining wall, if the overall height is 5.5 m. SBC of soil is 200 kN/m², angle of repose of the soil is 30° and unit weight of soil 18 kN/m³, width of the slab base is 3.2 m, toe projection is 0.6 m. Use M25 concrete and Fe500 steel. **10**
- Q.5** Design a square water tank having size 5m × 4m × 3.2m, resting on firm ground is free at top, bottom as well as vertical edges are fixed, with following details: depth of water 3.2 m, assume free board of 250 mm and solve by IS code method. Use M25 concrete and Fe415 steel. **10**

Section – II

- Q.6** A Prestressed concrete beam 500 mm × 750 mm in section has a span of 8 m & is subjected to udl of 17.5 kN/m including self weight of the beam. The prestressing tendons are located at lower third point of the section & provide an effective stresses in the concrete for midspan section. Determine the extreme stresses in concrete at the mid span section. Solve by following method: Stress concept method, strength concept method & load balancing method. Take prestressing force 1000 KN. **08**
- Q.7** A concrete beam 230 mm × 450 mm has a span of 12 m. The beam is prestressed by steel wires of 550 mm² at an eccentricity of 90 mm with an initial prestress of 1000 N/mm². Determine the percentage loss of stress in the wires for pre-tensioned and post-tensioned beam. Take $E_s = 2.5 \times 10^5$ N/mm², $E_c = 3.5 \times 10^4$ N/mm², Ultimate creep strain = 26×10^{-6} mm/mm per N/mm², Shrinkage strain = 1.7×10^{-4} , Relaxation of steel stress = 5% of the initial prestress, Anchorage slip = 1.25 mm, Friction coefficient for wave effect = 0.0015. **10**
- Q.8** Design PSC I section for the following data: Span = 15 m Superimposed load = 34 kN/m Cube strength of concrete at 28 days = 35 kN/m² Safe stress in concrete at transfer = 0.5 fck Allowable tensile stress in concrete = $0.129(fck)^{1/2}$ Safe stress in steel = 1000 MPa Total loss of stress = 20% Ultimate stress in steel = 1500 mpa. **10**
- Q.9** A PSC beam is 400 mm × 800 mm deep. Determine the horizontal, vertical, shear & principal stresses. The tendons are placed at an eccentricity of 100 mm. The anchor plate is 300 mm deep & 200 mm wide. Take P = 1000 KN. Design the end block by Magnel method for $x/d = 0.75$, take $K_q = 0.251$ and $K_z = -2.47$. **10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions :** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) While solving MCQ IS 456-2000, IS 3370 IV, IS 1343 are not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:

14

- 1) In water tank, for Fe₅₀₀ the permissible tensile stress is _____. 01
 - a) 130 N/mm²
 - b) 150 N/mm²
 - c) 125 N/mm²
 - d) 190 N/mm²
- 2) A pre-tensioned concrete beam, 100 mm wide and 300 mm deep in prestressed by straight wires and modulus of elasticity of steel and concrete are 210 and 35 N/mm². Find modular ratio _____. 01
 - a) 14
 - b) 7
 - c) 6
 - d) 10
- 3) The simplest method of analysis of bursting tensile forces in anchorage zone is _____. 01
 - a) Magnel method
 - b) Guyons method
 - c) Balton method
 - d) None
- 4) High tensile bars threaded at the ends are used in _____. 01
 - a) Fressyinet System
 - b) Gifford Udall method
 - c) Lee Mecall method
 - d) Magnel Blaton system
- 5) The value of K in the formula, $d = K (Mt)^{1/2}$ _____. 01
 - a) 10 to 20
 - b) 20 to 30
 - c) 30 to 40
 - d) None
- 6) What is the maximum pitch for a staircase? 01
 - a) 25°
 - b) 30°
 - c) 35°
 - d) 40°
- 7) In case of footing, the critical section for BM occurs _____. 01
 - a) At a distance of 'd/2' from face of column
 - b) At a distance of 'd' from face of column
 - c) At the face of the column
 - d) None of the above

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
3) Figures to the right indicate full marks.
4) Draw neat sketches where required and assume suitable data if required and state it clearly.
5) IS 456, IS1343, IS 3370 Part IV and non-programmable calculator are allowed.

Section – I

- Q.2** Design a dog-legged type staircase for a residential building using following data: **08**
- floor to floor height = 3.6 m
 - size of steps: Riser = 180 mm and tread = 250 mm
 - LL = 3.2 KN/m²
 - assume width of stair = 1 m
 - Material – M 20, Fe 415
 - width of beams = 300 mm
- The stair is supported at top and bottom risers by beam spanning parallel with risers at the landing slab on either side. Sketch the reinforcement details.
- Q.3** A rectangular column 400 mm × 600 mm carries an axial load of 2000 kN. The SBC of soil is 150 kN/ m². Using M20 concrete and Fe 415 steel, design a rectangular footing to support the column. Sketch the reinforcement details. **10**
- Q.4** Design the stem slab of a cantilever retaining wall, if the overall height is 5.5 m. SBC of soil is 200 kN/m², angle of repose of the soil is 30° and unit weight of soil 18 kN/m³, width of the slab base is 3.2 m, toe projection is 0.6 m. Use M25 concrete and Fe500 steel. **10**
- Q.5** Design a square water tank having size 5m × 4m × 3.2m, resting on firm ground is free at top, bottom as well as vertical edges are fixed, with following details: depth of water 3.2 m, assume free board of 250 mm and solve by IS code method. Use M25 concrete and Fe415 steel. **10**

Section – II

- Q.6** A Prestressed concrete beam 500 mm × 750 mm in section has a span of 8 m & is subjected to udl of 17.5 kN/m including self weight of the beam. The prestressing tendons are located at lower third point of the section & provide an effective stresses in the concrete for midspan section. Determine the extreme stresses in concrete at the mid span section. Solve by following method: Stress concept method, strength concept method & load balancing method. Take prestressing force 1000 KN. **08**
- Q.7** A concrete beam 230 mm × 450 mm has a span of 12 m. The beam is prestressed by steel wires of 550 mm² at an eccentricity of 90 mm with an initial prestress of 1000 N/mm². Determine the percentage loss of stress in the wires for pre-tensioned and post-tensioned beam. Take $E_s = 2.5 \times 10^5$ N/mm², $E_c = 3.5 \times 10^4$ N/mm², Ultimate creep strain = 26×10^{-6} mm/mm per N/mm², Shrinkage strain = 1.7×10^{-4} , Relaxation of steel stress = 5% of the initial prestress, Anchorage slip = 1.25 mm, Friction coefficient for wave effect = 0.0015. **10**
- Q.8** Design PSC I section for the following data: Span = 15 m Superimposed load = 34 kN/m Cube strength of concrete at 28 days = 35 kN/m² Safe stress in concrete at transfer = 0.5 fck Allowable tensile stress in concrete = $0.129(fck)^{1/2}$ Safe stress in steel = 1000 MPa Total loss of stress = 20% Ultimate stress in steel = 1500 mpa. **10**
- Q.9** A PSC beam is 400 mm × 800 mm deep. Determine the horizontal, vertical, shear & principal stresses. The tendons are placed at an eccentricity of 100 mm. The anchor plate is 300 mm deep & 200 mm wide. Take P = 1000 KN. Design the end block by Magnel method for $x/d = 0.75$, take $K_q = 0.251$ and $K_z = -2.47$. **10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions :** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) While solving MCQ IS 456-2000, IS 3370 IV, IS 1343 are not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

- Q.1 Choose the correct answer:** **14**
- 1) High tensile bars threaded at the ends are used in _____. 01
 - a) Fressyinet System
 - b) Gifford Udall method
 - c) Lee Mecall method
 - d) Magnel Blaton system
 - 2) The value of K in the formula, $d = K (Mt)^{1/2}$ _____. 01
 - a) 10 to 20
 - b) 20 to 30
 - c) 30 to 40
 - d) None
 - 3) What is the maximum pitch for a staircase? 01
 - a) 25°
 - b) 30°
 - c) 35°
 - d) 40°
 - 4) In case of footing, the critical section for BM occurs _____. 01
 - a) At a distance of 'd/2' from face of column
 - b) At a distance of 'd' from face of column
 - c) At the face of the column
 - d) None of the above
 - 5) If W is weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding, is _____. 01
 - a) 1
 - b) 1.5
 - c) 1.25
 - d) 2
 - 6) As per IS 456:2000, in reinforced footing, Thickness at the edge of footing shall not be less than _____ for footings on soils. 01
 - a) 125 mm
 - b) 150 mm
 - c) 200 mm
 - d) 300 mm
 - 7) All are the component of retaining wall except? 01
 - a) Toe Slab
 - b) Heel Slab
 - c) Stem
 - d) Surcharge
 - 8) In water tank, for Fe₅₀₀ the permissible tensile stress is _____. 01
 - a) 130 N/mm²
 - b) 150 N/mm²
 - c) 125 N/mm²
 - d) 190 N/mm²

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Draw neat sketches where required and assume suitable data if required and state it clearly.
 - 5) IS 456, IS1343, IS 3370 Part IV and non-programmable calculator are allowed.

Section – I

- Q.2** Design a dog-legged type staircase for a residential building using following data: **08**
- a) floor to floor height = 3.6 m
 - b) size of steps: Riser = 180 mm and tread = 250 mm
 - c) LL = 3.2 KN/m²
 - d) assume width of stair = 1 m
 - e) Material – M 20, Fe 415
 - f) width of beams = 300 mm
- The stair is supported at top and bottom risers by beam spanning parallel with risers at the landing slab on either side. Sketch the reinforcement details.
- Q.3** A rectangular column 400 mm × 600 mm carries an axial load of 2000 kN. The SBC of soil is 150 kN/ m². Using M20 concrete and Fe 415 steel, design a rectangular footing to support the column. Sketch the reinforcement details. **10**
- Q.4** Design the stem slab of a cantilever retaining wall, if the overall height is 5.5 m. SBC of soil is 200 kN/m², angle of repose of the soil is 30° and unit weight of soil 18 kN/m³, width of the slab base is 3.2 m, toe projection is 0.6 m. Use M25 concrete and Fe500 steel. **10**
- Q.5** Design a square water tank having size 5m × 4m × 3.2m, resting on firm ground is free at top, bottom as well as vertical edges are fixed, with following details: depth of water 3.2 m, assume free board of 250 mm and solve by IS code method. Use M25 concrete and Fe415 steel. **10**

Section – II

- Q.6** A Prestressed concrete beam 500 mm × 750 mm in section has a span of 8 m & is subjected to udl of 17.5 kN/m including self weight of the beam. The prestressing tendons are located at lower third point of the section & provide an effective stresses in the concrete for midspan section. Determine the extreme stresses in concrete at the mid span section. Solve by following method: Stress concept method, strength concept method & load balancing method. Take prestressing force 1000 KN. **08**
- Q.7** A concrete beam 230 mm × 450 mm has a span of 12 m. The beam is prestressed by steel wires of 550 mm² at an eccentricity of 90 mm with an initial prestress of 1000 N/mm². Determine the percentage loss of stress in the wires for pre-tensioned and post-tensioned beam. Take $E_s = 2.5 \times 10^5$ N/mm², $E_c = 3.5 \times 10^4$ N/mm², Ultimate creep strain = 26×10^{-6} mm/mm per N/mm², Shrinkage strain = 1.7×10^{-4} , Relaxation of steel stress = 5% of the initial prestress, Anchorage slip = 1.25 mm, Friction coefficient for wave effect = 0.0015. **10**
- Q.8** Design PSC I section for the following data: Span = 15 m Superimposed load = 34 kN/m Cube strength of concrete at 28 days = 35 kN/m² Safe stress in concrete at transfer = 0.5 fck Allowable tensile stress in concrete = $0.129(fck)^{1/2}$ Safe stress in steel = 1000 MPa Total loss of stress = 20% Ultimate stress in steel = 1500 mpa. **10**
- Q.9** A PSC beam is 400 mm × 800 mm deep. Determine the horizontal, vertical, shear & principal stresses. The tendons are placed at an eccentricity of 100 mm. The anchor plate is 300 mm deep & 200 mm wide. Take P = 1000 KN. Design the end block by Magnel method for $x/d = 0.75$, take $K_q = 0.251$ and $K_z = -2.47$. **10**

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions :** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) While solving MCQ IS 456-2000, IS 3370 IV, IS 1343 are not allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

- Q.1 Choose the correct answer:** **14**
- 1) If W is weight of a retaining wall and P is the horizontal earth pressure, the factor of safety against sliding, is _____. 01
 - a) 1
 - b) 1.5
 - c) 1.25
 - d) 2
 - 2) As per IS 456:2000, in reinforced footing, Thickness at the edge of footing shall not be less than _____ for footings on soils. 01
 - a) 125 mm
 - b) 150 mm
 - c) 200 mm
 - d) 300 mm
 - 3) All are the component of retaining wall except? 01
 - a) Toe Slab
 - b) Heel Slab
 - c) Stem
 - d) Surcharge
 - 4) In water tank, for F_{e500} the permissible tensile stress is _____. 01
 - a) 130 N/mm²
 - b) 150 N/mm²
 - c) 125 N/mm²
 - d) 190 N/mm²
 - 5) A pre-tensioned concrete beam, 100 mm wide and 300 mm deep in prestressed by straight wires and modulus of elasticity of steel and concrete are 210 and 35 N/mm². Find modular ratio _____. 01
 - a) 14
 - b) 7
 - c) 6
 - d) 10
 - 6) The simplest method of analysis of bursting tensile forces in anchorage zone is _____. 01
 - a) Magnel method
 - b) Guyons method
 - c) Balton method
 - d) None
 - 7) High tensile bars threaded at the ends are used in _____. 01
 - a) Fressyinet System
 - b) Gifford Udall method
 - c) Lee Mecall method
 - d) Magnel Blaton system
 - 8) The value of K in the formula, $d = K (Mt)^{1/2}$ _____. 01
 - a) 10 to 20
 - b) 20 to 30
 - c) 30 to 40
 - d) None

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Design of Concrete Structures – II (197042703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 - 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 - 3) Figures to the right indicate full marks.
 - 4) Draw neat sketches where required and assume suitable data if required and state it clearly.
 - 5) IS 456, IS1343, IS 3370 Part IV and non-programmable calculator are allowed.

Section – I

- Q.2** Design a dog-legged type staircase for a residential building using following data: **08**
- a) floor to floor height = 3.6 m
 - b) size of steps: Riser = 180 mm and tread = 250 mm
 - c) LL = 3.2 KN/m²
 - d) assume width of stair = 1 m
 - e) Material – M 20, Fe 415
 - f) width of beams = 300 mm
- The stair is supported at top and bottom risers by beam spanning parallel with risers at the landing slab on either side. Sketch the reinforcement details.
- Q.3** A rectangular column 400 mm × 600 mm carries an axial load of 2000 kN. The SBC of soil is 150 kN/ m². Using M20 concrete and Fe 415 steel, design a rectangular footing to support the column. Sketch the reinforcement details. **10**
- Q.4** Design the stem slab of a cantilever retaining wall, if the overall height is 5.5 m. SBC of soil is 200 kN/m², angle of repose of the soil is 30° and unit weight of soil 18 kN/m³, width of the slab base is 3.2 m, toe projection is 0.6 m. Use M25 concrete and Fe500 steel. **10**
- Q.5** Design a square water tank having size 5m × 4m × 3.2m, resting on firm ground is free at top, bottom as well as vertical edges are fixed, with following details: depth of water 3.2 m, assume free board of 250 mm and solve by IS code method. Use M25 concrete and Fe415 steel. **10**

Section – II

- Q.6** A Prestressed concrete beam 500 mm × 750 mm in section has a span of 8 m & is subjected to udl of 17.5 kN/m including self weight of the beam. The prestressing tendons are located at lower third point of the section & provide an effective stresses in the concrete for midspan section. Determine the extreme stresses in concrete at the mid span section. Solve by following method: Stress concept method, strength concept method & load balancing method. Take prestressing force 1000 KN. **08**
- Q.7** A concrete beam 230 mm × 450 mm has a span of 12 m. The beam is prestressed by steel wires of 550 mm² at an eccentricity of 90 mm with an initial prestress of 1000 N/mm². Determine the percentage loss of stress in the wires for pre-tensioned and post-tensioned beam. Take $E_s = 2.5 \times 10^5$ N/mm², $E_c = 3.5 \times 10^4$ N/mm², Ultimate creep strain = 26×10^{-6} mm/mm per N/mm², Shrinkage strain = 1.7×10^{-4} , Relaxation of steel stress = 5% of the initial prestress, Anchorage slip = 1.25 mm, Friction coefficient for wave effect = 0.0015. **10**
- Q.8** Design PSC I section for the following data: Span = 15 m Superimposed load = 34 kN/m Cube strength of concrete at 28 days = 35 kN/m² Safe stress in concrete at transfer = 0.5 fck Allowable tensile stress in concrete = $0.129(fck)^{1/2}$ Safe stress in steel = 1000 MPa Total loss of stress = 20% Ultimate stress in steel = 1500 mpa. **10**
- Q.9** A PSC beam is 400 mm × 800 mm deep. Determine the horizontal, vertical, shear & principal stresses. The tendons are placed at an eccentricity of 100 mm. The anchor plate is 300 mm deep & 200 mm wide. Take P = 1000 KN. Design the end block by Magnel method for $x/d = 0.75$, take $K_q = 0.251$ and $K_z = -2.47$. **10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each MCQ carry one marks.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The zone factors indicate reasonably estimated values of _____ in the respective zone.

a) Peak intensity of earthquake	b) Peak ground velocity
c) Peak ground acceleration	d) Peak ground displacement
- 2) Choose the correct option from following statements:

a) Earthquake causes landslide	b) Landslide causes earthquake
c) a) and b) are wrong	d) a) and b) both are correct
- 3) The damping in a dynamic system is represented as equivalent to _____.

a) Coulomb damping	b) Viscous damping
c) Friction damping	d) Negative damping
- 4) The response is maximum when _____.

a) Damping ratio = 1	b) Frequency ratio = 1
c) Stiffness ratio = 1	d) Mass ratio = 1
- 5) With the increase in the stiffness of the structural system, the natural period _____.

a) increases	b) decreases
c) remains same	d) constant
- 6) In the equivalent static procedure, the natural period of the building is _____.

a) Computed by the free-vibration analysis
b) Estimated according to the formula in IS-1893:2016
c) Assumed
d) as given in book
- 7) The acceleration response spectrum in IS-1893:2016 is for the damping of _____.

a) 2%	b) 10%
c) 5%	d) None of these

- 8) _____ is the building structure which has least lateral force resistance.
- a) Ordinary moment-resisting RCC frame
 - b) Special moment-resisting RCC frame
 - c) Shear wall structure
 - d) Masonry structure
- 9) The slenderness ratio of masonry is the ratio of _____.
- a) Length of wall to height of wall
 - b) Length of wall to thickness
 - c) Height of wall to area of cross-section
 - d) None of above
- 10) The structures having short natural period _____.
- a) Attract large seismic forces
 - b) Have large drift
 - c) Attract less seismic forces and have large drift
 - d) Attract large seismic forces and have small drift
- 11) The magnitude of earthquake _____.
- a) remains same location wise
 - b) varying location wise
 - c) increasing location wise
 - d) decreasing location wise
- 12) A building structure suffers torsion under seismic action when _____.
- a) The centre of gravity does not coincide with the centre of rigidity
 - b) The centre of gravity does not coincide with the centre of stiffness
 - c) The centre of rigidity does not coincide with the centre of stiffness
 - d) The centre of gravity coincides with the centre of stiffness
- 13) India is divided into _____ earthquake zones.
- a) Five
 - b) Four
 - c) Six
 - d) Seven
- 14) The response reduction factor accounts for _____.
- a) Ductile behaviour of the structure
 - b) Redundancy in the structure
 - c) Over strength of the structure
 - d) All of the above

Seat No.	
----------	--

Set P

Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) In Section – I, Q. No. 4 is compulsory. Attempt any two questions from the remaining questions.
 - 2) In Section – II, Q. No. 9 is compulsory. Attempt any two questions from the remaining questions.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary and mention it clearly.
 - 5) Use of only IS 1893:2016 is allowed.

Section – I

- Q.2** What do you understand by soil liquefaction? What are the factors affecting liquefaction? **09**
- Q.3** Write the equation of motion and determine the effective stiffness using the basic definition of stiffness for the spring-mass systems shown in following fig. 1. **09**

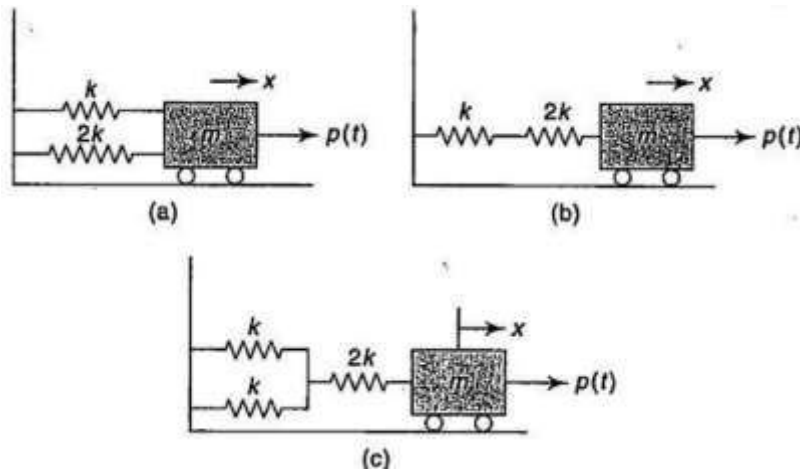
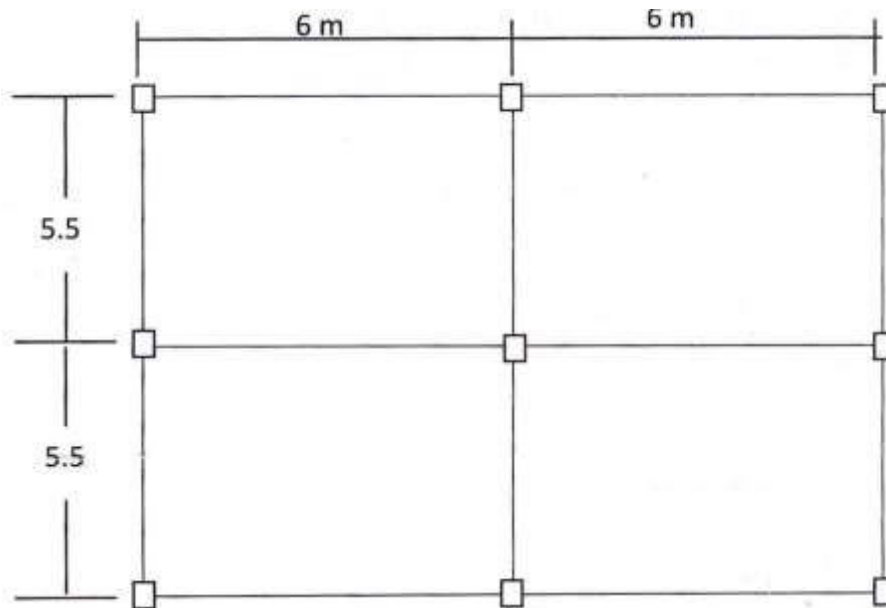


Fig. 1

- Q.4** What do you mean by force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **10**
- Q.5** Derive the Duhamel's Integral for damped system. From this expression reduce the expression for Duhamel's Integral for Undamped system. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. three storied college building having plan dimensions as shown in fig. 2 in zone II with following data. Determine the lateral forces and base shear in longer for the building. The all column sizes are 300 x 450 mm & beams sizes are 230 x 450 mm. The slab thickness is 120mm & thk. of walls is 230mm. The ht. of floor is 3.2m & Live load is 3.0 kN/m². Provisions of IS 13920 will be incorporated. The strata is Medium. **09**



- Q.7** What do understand by a weak storey? How weak storey differs from soft storey? **09**
- Q.8** What are the factors that make steel the most ideal material for earthquake resistance? Explain how it is useful in confinement of RC members. **09**
- Q.9** State the reasons for the poor of performance of masonry building in seismic areas. **10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each MCQ carry one marks.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) _____ is the building structure which has least lateral force resistance.
 - a) Ordinary moment-resisting RCC frame
 - b) Special moment-resisting RCC frame
 - c) Shear wall structure
 - d) Masonry structure
- 2) The slenderness ratio of masonry is the ratio of _____.
 - a) Length of wall to height of wall
 - b) Length of wall to thickness
 - c) Height of wall to area of cross-section
 - d) None of above
- 3) The structures having short natural period _____.
 - a) Attract large seismic forces
 - b) Have large drift
 - c) Attract less seismic forces and have large drift
 - d) Attract large seismic forces and have small drift
- 4) The magnitude of earthquake _____.

a) remains same location wise	b) varying location wise
c) increasing location wise	d) decreasing location wise
- 5) A building structure suffers torsion under seismic action when _____.
 - a) The centre of gravity does not coincide with the centre of rigidity
 - b) The centre of gravity does not coincide with the centre of stiffness
 - c) The centre of rigidity does not coincide with the centre of stiffness
 - d) The centre of gravity coincides with the centre of stiffness
- 6) India is divided into _____ earthquake zones.

a) Five	b) Four
c) Six	d) Seven

- 7) The response reduction factor accounts for _____.
- a) Ductile behaviour of the structure
 - b) Redundancy in the structure
 - c) Over strength of the structure
 - d) All of the above
- 8) The zone factors indicate reasonably estimated values of _____ in the respective zone.
- a) Peak intensity of earthquake
 - b) Peak ground velocity
 - c) Peak ground acceleration
 - d) Peak ground displacement
- 9) Choose the correct option from following statements:
- a) Earthquake causes landslide
 - b) Landslide causes earthquake
 - c) a) and b) are wrong
 - d) a) and b) both are correct
- 10) The damping in a dynamic system is represented as equivalent to _____.
- a) Coulomb damping
 - b) Viscous damping
 - c) Friction damping
 - d) Negative damping
- 11) The response is maximum when _____.
- a) Damping ratio = 1
 - b) Frequency ratio = 1
 - c) Stiffness ratio = 1
 - d) Mass ratio = 1
- 12) With the increase in the stiffness of the structural system, the natural period _____.
- a) increases
 - b) decreases
 - c) remains same
 - d) constant
- 13) In the equivalent static procedure, the natural period of the building is _____.
- a) Computed by the free-vibration analysis
 - b) Estimated according to the formula in IS-1893:2016
 - c) Assumed
 - d) as given in book
- 14) The acceleration response spectrum in IS-1893:2016 is for the damping of _____.
- a) 2%
 - b) 10%
 - c) 5%
 - d) None of these

Seat No.	
----------	--

Set Q

Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section – I, Q. No. 4 is compulsory. Attempt any two questions from the remaining questions.
2) In Section – II, Q. No. 9 is compulsory. Attempt any two questions from the remaining questions.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.
5) Use of only IS 1893:2016 is allowed.

Section – I

- Q.2** What do you understand by soil liquefaction? What are the factors affecting liquefaction? **09**
- Q.3** Write the equation of motion and determine the effective stiffness using the basic definition of stiffness for the spring-mass systems shown in following fig. 1. **09**

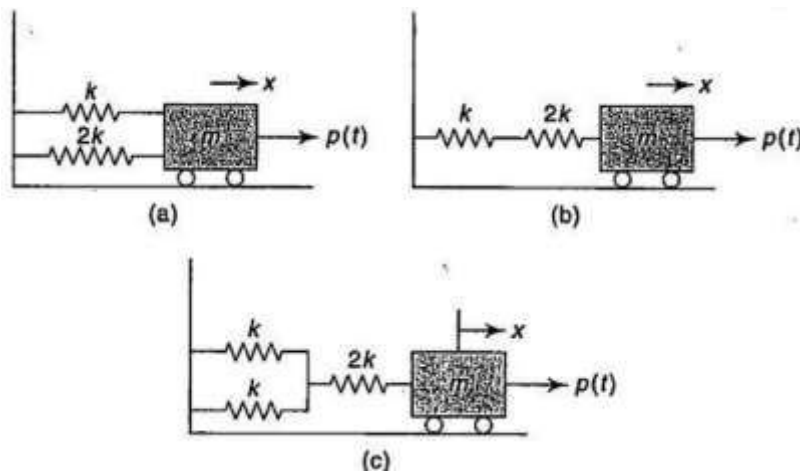
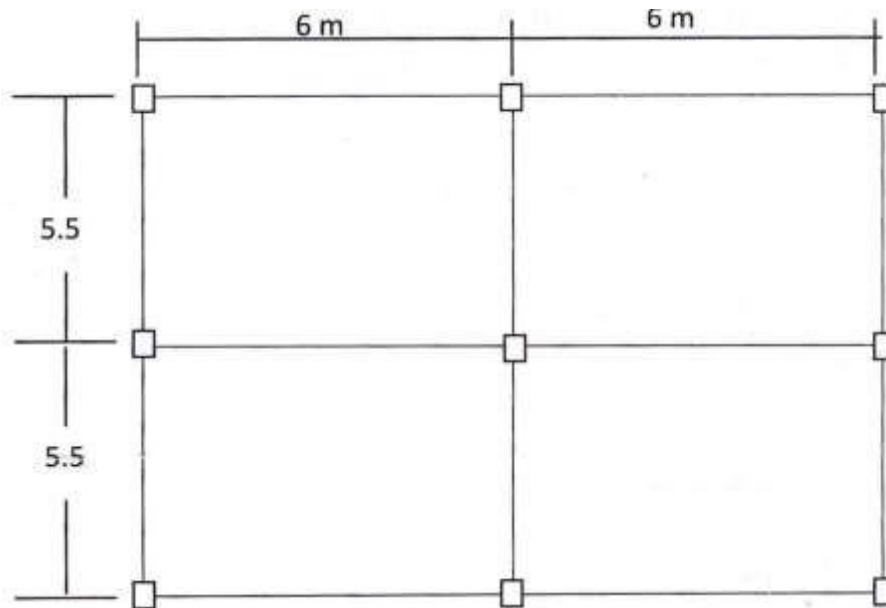


Fig. 1

- Q.4** What do you mean by force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **10**
- Q.5** Derive the Duhamel's Integral for damped system. From this expression reduce the expression for Duhamel's Integral for Undamped system. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. three storied college building having plan dimensions as shown in fig. 2 in zone II with following data. Determine the lateral forces and base shear in longer for the building. The all column sizes are 300 x 450 mm & beams sizes are 230 x 450 mm. The slab thickness is 120mm & thk. of walls is 230mm. The ht. of floor is 3.2m & Live load is 3.0 kN/m². Provisions of IS 13920 will be incorporated. The strata is Medium. **09**



- Q.7** What do understand by a weak storey? How weak storey differs from soft storey? **09**
- Q.8** What are the factors that make steel the most ideal material for earthquake resistance? Explain how it is useful in confinement of RC members. **09**
- Q.9** State the reasons for the poor of performance of masonry building in seismic areas. **10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each MCQ carry one marks.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The magnitude of earthquake _____.
a) remains same location wise b) varying location wise
c) increasing location wise d) decreasing location wise
- 2) A building structure suffers torsion under seismic action when _____.
a) The centre of gravity does not coincide with the centre of rigidity
b) The centre of gravity does not coincide with the centre of stiffness
c) The centre of rigidity does not coincide with the centre of stiffness
d) The centre of gravity coincides with the centre of stiffness
- 3) India is divided into _____ earthquake zones.
a) Five b) Four
c) Six d) Seven
- 4) The response reduction factor accounts for _____.
a) Ductile behaviour of the structure
b) Redundancy in the structure
c) Over strength of the structure
d) All of the above
- 5) The zone factors indicate reasonably estimated values of _____ in the respective zone.
a) Peak intensity of earthquake b) Peak ground velocity
c) Peak ground acceleration d) Peak ground displacement
- 6) Choose the correct option from following statements:
a) Earthquake causes landslide b) Landslide causes earthquake
c) a) and b) are wrong d) a) and b) both are correct
- 7) The damping in a dynamic system is represented as equivalent to _____.
a) Coulomb damping b) Viscous damping
c) Friction damping d) Negative damping
- 8) The response is maximum when _____.
a) Damping ratio = 1 b) Frequency ratio = 1
c) Stiffness ratio = 1 d) Mass ratio = 1

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section – I, Q. No. 4 is compulsory. Attempt any two questions from the remaining questions.
2) In Section – II, Q. No. 9 is compulsory. Attempt any two questions from the remaining questions.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.
5) Use of only IS 1893:2016 is allowed.

Section – I

- Q.2** What do you understand by soil liquefaction? What are the factors affecting liquefaction? **09**
- Q.3** Write the equation of motion and determine the effective stiffness using the basic definition of stiffness for the spring-mass systems shown in following fig. 1. **09**

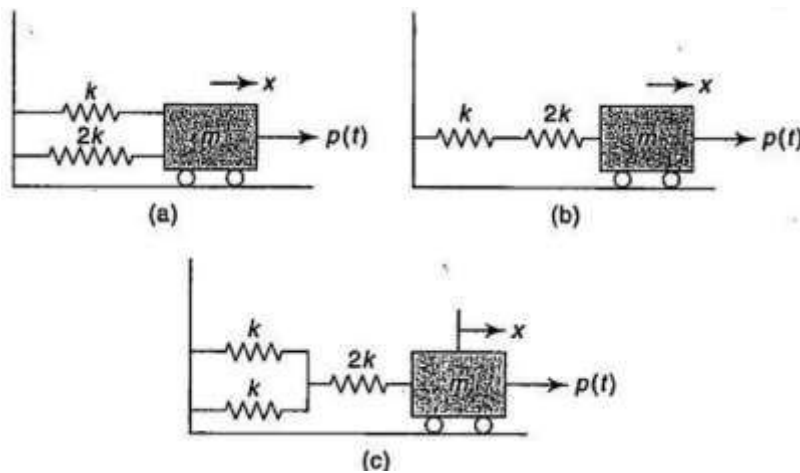
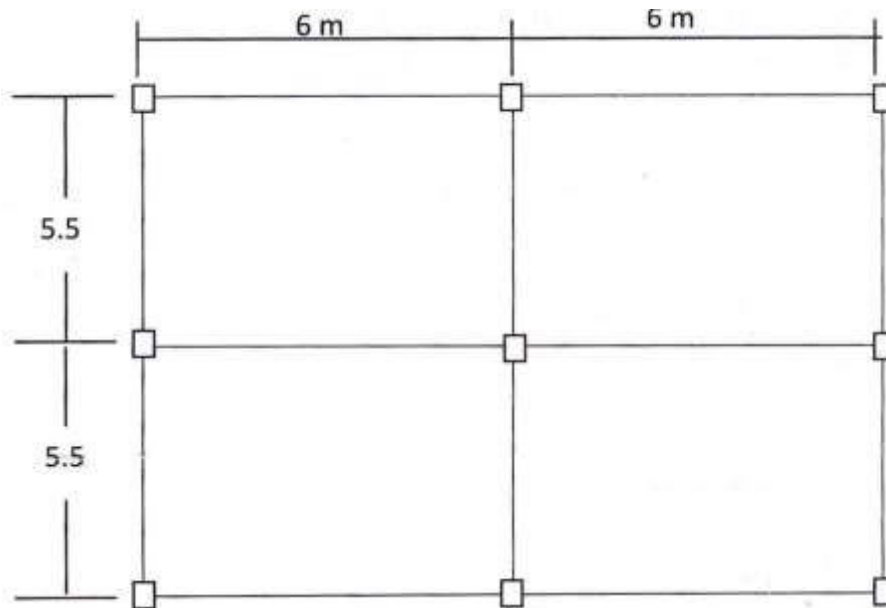


Fig. 1

- Q.4** What do you mean by force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **10**
- Q.5** Derive the Duhamel's Integral for damped system. From this expression reduce the expression for Duhamel's Integral for Undamped system. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. three storied college building having plan dimensions as shown in fig. 2 in zone II with following data. Determine the lateral forces and base shear in longer for the building. The all column sizes are 300 x 450 mm & beams sizes are 230 x 450 mm. The slab thickness is 120mm & thk. of walls is 230mm. The ht. of floor is 3.2m & Live load is 3.0 kN/m². Provisions of IS 13920 will be incorporated. The strata is Medium. **09**



- Q.7** What do understand by a weak storey? How weak storey differs from soft storey? **09**
- Q.8** What are the factors that make steel the most ideal material for earthquake resistance? Explain how it is useful in confinement of RC members. **09**
- Q.9** State the reasons for the poor of performance of masonry building in seismic areas. **10**

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each MCQ carry one marks.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

- 1) In the equivalent static procedure, the natural period of the building is _____.
 - a) Computed by the free-vibration analysis
 - b) Estimated according to the formula in IS-1893:2016
 - c) Assumed
 - d) as given in book
- 2) The acceleration response spectrum in IS-1893:2016 is for the damping of _____.

a) 2%	b) 10%
c) 5%	d) None of these
- 3) _____ is the building structure which has least lateral force resistance.
 - a) Ordinary moment-resisting RCC frame
 - b) Special moment-resisting RCC frame
 - c) Shear wall structure
 - d) Masonry structure
- 4) The slenderness ratio of masonry is the ratio of _____.
 - a) Length of wall to height of wall
 - b) Length of wall to thickness
 - c) Height of wall to area of cross-section
 - d) None of above
- 5) The structures having short natural period _____.
 - a) Attract large seismic forces
 - b) Have large drift
 - c) Attract less seismic forces and have large drift
 - d) Attract large seismic forces and have small drift
- 6) The magnitude of earthquake _____.

a) remains same location wise	b) varying location wise
c) increasing location wise	d) decreasing location wise

- 7) A building structure suffers torsion under seismic action when _____.
- a) The centre of gravity does not coincide with the centre of rigidity
 - b) The centre of gravity does not coincide with the centre of stiffness
 - c) The centre of rigidity does not coincide with the centre of stiffness
 - d) The centre of gravity coincides with the centre of stiffness
- 8) India is divided into _____ earthquake zones.
- a) Five
 - b) Four
 - c) Six
 - d) Seven
- 9) The response reduction factor accounts for _____.
- a) Ductile behaviour of the structure
 - b) Redundancy in the structure
 - c) Over strength of the structure
 - d) All of the above
- 10) The zone factors indicate reasonably estimated values of _____ in the respective zone.
- a) Peak intensity of earthquake
 - b) Peak ground velocity
 - c) Peak ground acceleration
 - d) Peak ground displacement
- 11) Choose the correct option from following statements:
- a) Earthquake causes landslide
 - b) Landslide causes earthquake
 - c) a) and b) are wrong
 - d) a) and b) both are correct
- 12) The damping in a dynamic system is represented as equivalent to _____.
- a) Coulomb damping
 - b) Viscous damping
 - c) Friction damping
 - d) Negative damping
- 13) The response is maximum when _____.
- a) Damping ratio = 1
 - b) Frequency ratio = 1
 - c) Stiffness ratio = 1
 - d) Mass ratio = 1
- 14) With the increase in the stiffness of the structural system, the natural period _____.
- a) increases
 - b) decreases
 - c) remains same
 - d) constant

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Earthquake Engineering (197042704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section – I, Q. No. 4 is compulsory. Attempt any two questions from the remaining questions.
2) In Section – II, Q. No. 9 is compulsory. Attempt any two questions from the remaining questions.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.
5) Use of only IS 1893:2016 is allowed.

Section – I

- Q.2** What do you understand by soil liquefaction? What are the factors affecting liquefaction? **09**
- Q.3** Write the equation of motion and determine the effective stiffness using the basic definition of stiffness for the spring-mass systems shown in following fig. 1. **09**

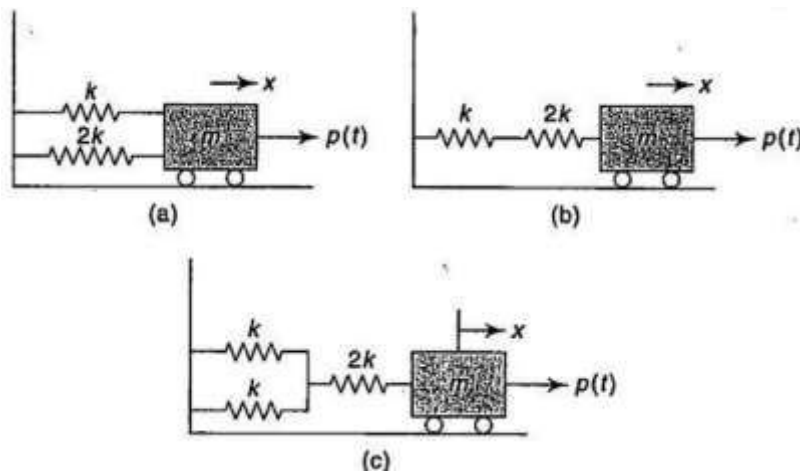
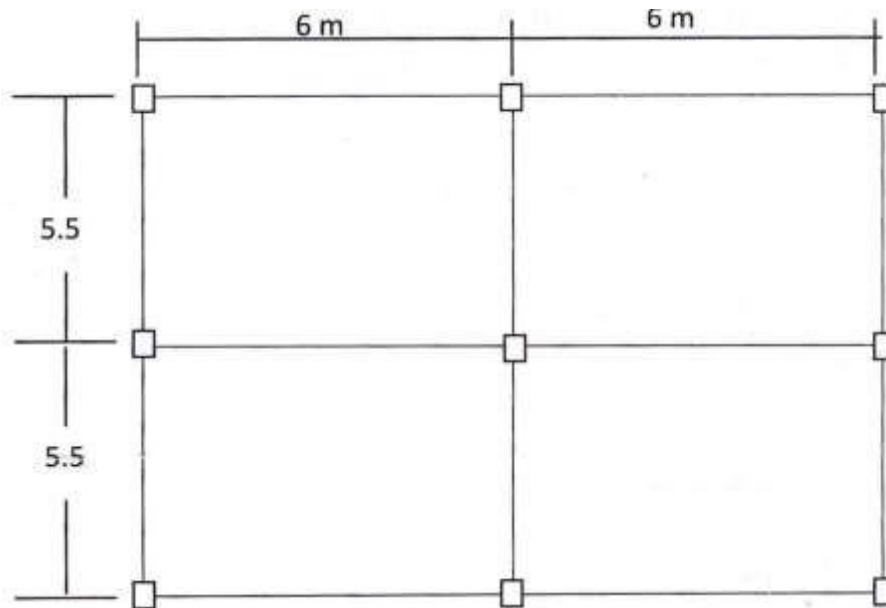


Fig. 1

- Q.4** What do you mean by force transmissibility? Derive an expression for force transmissibility to the foundation of a SDOF system subjected to harmonic force. **10**
- Q.5** Derive the Duhamel's Integral for damped system. From this expression reduce the expression for Duhamel's Integral for Undamped system. **09**

Section – II

- Q.6** It is proposed to construct a R.C.C. three storied college building having plan dimensions as shown in fig. 2 in zone II with following data. Determine the lateral forces and base shear in longer for the building. The all column sizes are 300 x 450 mm & beams sizes are 230 x 450 mm. The slab thickness is 120mm & thk. of walls is 230mm. The ht. of floor is 3.2m & Live load is 3.0 kN/m². Provisions of IS 13920 will be incorporated. The strata is Medium. **09**



- Q.7** What do understand by a weak storey? How weak storey differs from soft storey? **09**
- Q.8** What are the factors that make steel the most ideal material for earthquake resistance? Explain how it is useful in confinement of RC members. **09**
- Q.9** State the reasons for the poor of performance of masonry building in seismic areas. **10**

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (197042712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the most important objective of traffic engineering?
 - a) To consider pedestrians as obstruction
 - b) To reduce the accidents
 - c) To increase the traffic
 - d) To provide a high-speed road without any other priority
- 2) The speed at any instant of time is called _____.
 - a) Running Speed
 - b) Travel speed
 - c) Spot speed
 - d) Traffic speed
- 3) The vehicles per unit length at any instant of time is called as _____.
 - a) Density
 - b) Jam Density
 - c) Maximum density
 - d) Traffic flow
- 4) The symbol when violated which may lead to offense is?
 - a) Cautionary
 - b) Mandatory
 - c) Informatory
 - d) Both informatory and cautionary
- 5) The clearance time is indicated by _____.
 - a) Red
 - b) Green
 - c) White
 - d) Amber
- 6) Give way sign is of _____.
 - a) Triangular shape
 - b) Circular shape
 - c) Octagonal shape
 - d) Hexagonal shape
- 7) Which of the following roads are congested during peak hours?
 - a) Rural roads
 - b) Urban roads
 - c) Highways
 - d) Express ways
- 8) The traffic that is prepared based on 365 days of the year is called _____.
 - a) Yearly traffic
 - b) Annual average daily traffic
 - c) Average daily traffic
 - d) Average yearly traffic

- 9) To reduce the conflicts which method is preferable _____.
- a) Restricting the entry in one side
 - b) Widening of the roads
 - c) Use of traffic signals
 - d) Diverting the traffic
- 10) Which one of the following is not a regulatory sign?
- a) No U-turn
 - b) Overtaking prohibited
 - c) School zone
 - d) No parking
- 11) Which one of the following is not a warning sign?
- a) No entry
 - b) Curve ahead
 - c) U-turn
 - d) Narrow bridge ahead
- 12) Give name of traffic control devices _____.
- a) signs
 - b) signals
 - c) marking
 - d) all of the above
- 13) For highway geometric design purposes, the speed used is _____.
- a) 15th percentile
 - b) 50th percentile
 - c) 85th percentile
 - d) 98th percentile
- 14) STOP sign is having _____.
- a) Triangular shape
 - b) Circular shape
 - c) Octagonal shape
 - d) Any shape

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Traffic Engineering and Management (197042712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer the following questions (Any Two) 14

- Explain in detail objective and scope of traffic engineering.
- Explain in detail road user characteristics, vehicular characteristics-static and dynamic characteristics in traffic Engineering.
- Write short note on:
 - Spot Speed Studies
 - Speed and Delay Studies
 - Origin and Destination Studies

Q.3 Answer the following questions (Any Two) 14

- Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	15	50 to 60	260
10 to 20	20	60 to 70	125
20 to 30	70	70 to 80	45
30 to 40	92	80 to 90	35
40 to 50	210	90 to 100	12

Determine:

- Upper and lower values or speed limits for regulation of mixed traffic flow.
 - Design speed for checking geometric design of highway elements.
- Explain and Derive relationship between Traffic Volume, Speed and Density.
 - Explain the following terms in detail.
 - Highway Capacity and level of service
 - Capacity of urban and rural roads
 - PCU concept

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- a) Explain in detail various regulations on vehicles in traffic engineering.
 - b) Explain in detail Central Motor Vehicle Rules.
 - c) Explain in detail Traffic signs, Traffic Markings and Islands.
- Q.5 Answer the following questions (Any Two) 14**
- a) Explain in detail approach for Rotary intersection design.
 - d) Write a short note on.
 - i) Traffic Signals
 - ii) Road Lighting
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Traffic Engineering and Management (197042712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer the following questions (Any Two) 14

- a) Explain in detail objective and scope of traffic engineering.
- b) Explain in detail road user characteristics, vehicular characteristics-static and dynamic characteristics in traffic Engineering.
- c) Write short note on:
 - i) Spot Speed Studies
 - ii) Speed and Delay Studies
 - iii) Origin and Destination Studies

Q.3 Answer the following questions (Any Two) 14

- a) Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	15	50 to 60	260
10 to 20	20	60 to 70	125
20 to 30	70	70 to 80	45
30 to 40	92	80 to 90	35
40 to 50	210	90 to 100	12

Determine:

- i) Upper and lower values or speed limits for regulation of mixed traffic flow.
- ii) Design speed for checking geometric design of highway elements.
- b) Explain and Derive relationship between Traffic Volume, Speed and Density.
- c) Explain the following terms in detail.
 - i) Highway Capacity and level of service
 - ii) Capacity of urban and rural roads
 - iii) PCU concept

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- a) Explain in detail various regulations on vehicles in traffic engineering.
 - b) Explain in detail Central Motor Vehicle Rules.
 - c) Explain in detail Traffic signs, Traffic Markings and Islands.
- Q.5 Answer the following questions (Any Two) 14**
- a) Explain in detail approach for Rotary intersection design.
 - d) Write a short note on.
 - i) Traffic Signals
 - ii) Road Lighting
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Traffic Engineering and Management (197042712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which one of the following is not a warning sign?

a) No entry	b) Curve ahead
c) U-turn	d) Narrow bridge ahead
- 2) Give name of traffic control devices _____.

a) signs	b) signals
c) marking	d) all of the above
- 3) For highway geometric design purposes, the speed used is _____.

a) 15th percentile	b) 50th percentile
c) 85th percentile	d) 98th percentile
- 4) STOP sign is having _____.

a) Triangular shape	b) Circular shape
c) Octagonal shape	d) Any shape
- 5) What is the most important objective of traffic engineering?

a) To consider pedestrians as obstruction
b) To reduce the accidents
c) To increase the traffic
d) To provide a high-speed road without any other priority
- 6) The speed at any instant of time is called _____.

a) Running Speed	b) Travel speed
c) Spot speed	d) Traffic speed
- 7) The vehicles per unit length at any instant of time is called as _____.

a) Density	b) Jam Density
c) Maximum density	d) Traffic flow
- 8) The symbol when violated which may lead to offense is?

a) Cautionary	b) Mandatory
c) Informatory	d) Both informatory and cautionary

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Traffic Engineering and Management (197042712)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer the following questions (Any Two) 14

- a) Explain in detail objective and scope of traffic engineering.
- b) Explain in detail road user characteristics, vehicular characteristics-static and dynamic characteristics in traffic Engineering.
- c) Write short note on:
 - i) Spot Speed Studies
 - ii) Speed and Delay Studies
 - iii) Origin and Destination Studies

Q.3 Answer the following questions (Any Two) 14

- a) Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	15	50 to 60	260
10 to 20	20	60 to 70	125
20 to 30	70	70 to 80	45
30 to 40	92	80 to 90	35
40 to 50	210	90 to 100	12

Determine:

- i) Upper and lower values or speed limits for regulation of mixed traffic flow.
- ii) Design speed for checking geometric design of highway elements.
- b) Explain and Derive relationship between Traffic Volume, Speed and Density.
- c) Explain the following terms in detail.
 - i) Highway Capacity and level of service
 - ii) Capacity of urban and rural roads
 - iii) PCU concept

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- a) Explain in detail various regulations on vehicles in traffic engineering.
 - b) Explain in detail Central Motor Vehicle Rules.
 - c) Explain in detail Traffic signs, Traffic Markings and Islands.
- Q.5 Answer the following questions (Any Two) 14**
- a) Explain in detail approach for Rotary intersection design.
 - d) Write a short note on.
 - i) Traffic Signals
 - ii) Road Lighting
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

- 9) STOP sign is having _____.
a) Triangular shape b) Circular shape
c) Octagonal shape d) Any shape
- 10) What is the most important objective of traffic engineering?
a) To consider pedestrians as obstruction
b) To reduce the accidents
c) To increase the traffic
d) To provide a high-speed road without any other priority
- 11) The speed at any instant of time is called _____.
a) Running Speed b) Travel speed
c) Spot speed d) Traffic speed
- 12) The vehicles per unit length at any instant of time is called as _____.
a) Density b) Jam Density
c) Maximum density d) Traffic flow
- 13) The symbol when violated which may lead to offense is?
a) Cautionary b) Mandatory
c) Informatory d) Both informatory and cautionary
- 14) The clearance time is indicated by _____.
a) Red b) Green
c) White d) Amber

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Traffic Engineering and Management (197042712)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.
4) Draw neat sketches wherever necessary.

Section – I

Q.2 Answer the following questions (Any Two) 14

- a) Explain in detail objective and scope of traffic engineering.
- b) Explain in detail road user characteristics, vehicular characteristics-static and dynamic characteristics in traffic Engineering.
- c) Write short note on:
 - i) Spot Speed Studies
 - ii) Speed and Delay Studies
 - iii) Origin and Destination Studies

Q.3 Answer the following questions (Any Two) 14

- a) Spot speed studies are carried out at a certain stretch of highway and consolidated data is given below prepare frequency distribution table.

Speed Range (Kmph)	No. of vehicles Observed	Speed Range (Kmph)	No. of vehicles Observed
0 to 10	15	50 to 60	260
10 to 20	20	60 to 70	125
20 to 30	70	70 to 80	45
30 to 40	92	80 to 90	35
40 to 50	210	90 to 100	12

Determine:

- i) Upper and lower values or speed limits for regulation of mixed traffic flow.
- ii) Design speed for checking geometric design of highway elements.
- b) Explain and Derive relationship between Traffic Volume, Speed and Density.
- c) Explain the following terms in detail.
 - i) Highway Capacity and level of service
 - ii) Capacity of urban and rural roads
 - iii) PCU concept

Section – II

- Q.4 Answer the following questions (Any Two) 14**
- a) Explain in detail various regulations on vehicles in traffic engineering.
 - b) Explain in detail Central Motor Vehicle Rules.
 - c) Explain in detail Traffic signs, Traffic Markings and Islands.
- Q.5 Answer the following questions (Any Two) 14**
- a) Explain in detail approach for Rotary intersection design.
 - d) Write a short note on.
 - i) Traffic Signals
 - ii) Road Lighting
 - c) Explain various applications of 'Intelligent Transportation System (ITS)' in traffic engineering.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Traffic passing through 'special class' level crossing should be more than _____ Train Vehicle Unit (TVU).
a) 10000 to 20000 b) 30000 to 50000
c) 20000 to 30000 d) Above 50000
- 2) Indication post for detonators should be provide data at a distance of _____ m & _____ m for B.G. Level crossing.
a) 400 m & 800 m b) 500 m & 1200 m
c) 600 m & 1200 m d) 600 m & 1000 m
- 3) For protection of level crossing gate in an emergency on BG. Double line, the gateman should place one detonator at one place & three detonator at subsequent place at a distance of _____ m & _____ m respectively.
a) 400 m & 800 m b) 600 m & 1200 m
c) 500 m & 1000 m d) 300 m & 900 m
- 4) In an unmanned Level crossing, stop board should be provided at a distance of from the centre of nearest track _____.
a) 5 m b) 10 m
c) 7.5 m d) None of these
- 5) Replacement of swing gates by lifting bander existing manned Level Crossings shall be carried out where TVU is more than _____.
a) 4000 b) 50,000
c) 40,000 d) 60,000
- 6) TSR is recommended when the % age of unserviceable sleeper become more than _____.
a) 20% b) 40%
c) 30% d) None of these

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 8 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 6, 7 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | | |
|------------|----|-------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Discuss the need of mechanized maintenance of railway track. | 05 |
| | b) | With the help of diagram, illustrate the tamping procedure. | 05 |
| Q.3 | a) | Elaborate the classification track renewals. | 04 |
| | b) | Explain the renewal of Sleepers. | 05 |
| Q.4 | a) | Illustrate the whistle board with a neat diagram. | 04 |
| | b) | Illustrate the speed braker with a neat diagram. | 05 |
| Q.5 | a) | Describe the chemical and mechanical composition of all types of steel used in Indian Railway tracks. | 05 |
| | b) | Explain the handling process of rails. | 04 |

Section – II

- | | | | |
|------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Illustrate the reasons behind defects found in Rails. | 04 |
| | b) | Elaborate with the help of a diagram details of LWR. | 05 |
| Q.7 | a) | With the help of diagram explain Alumina Thermite process. | 04 |
| | b) | Identify the various types of derailments and mention the aspects of derailments. | 05 |
| Q.8 | a) | Explain diamond crossing with help of diagram. | 05 |
| | b) | A main line track on BG is having LWR of 52 kgs Laid at 40°C. The maximum rail temperature is 60°C and the minimum rail temperature is 0°C. Calculate the following:
i) Tension in rail
ii) Compression in rail
iii) Tensile stress and
iv) Compressive stress | 05 |
| Q.9 | a) | Illustrate the requirement of Railway station. (at least six points) | 04 |
| | b) | Discuss Nadal's Formula and its application. | 05 |

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the limiting loss of section in 52 kg. rail?
 - a) 4%
 - b) 8%
 - c) 10%
 - d) 6%
- 2) The service life of 60 kg. 90 UTS rail in GMT is _____.
 - a) 800
 - b) 1500
 - c) 1000
 - d) None of these
- 3) The service life of 52 kg. 72 UTS rails _____ in GMT.
 - a) 350
 - b) 250
 - c) 325
 - d) 550
- 4) When the Train Vehicle unit exceeds. TVU or visibility is poor as in the case of an unmanned level crossing, the same is considered as accident prone and action should be taken to man such level crossings in a phased manner.
 - a) <2500
 - b) 10000
 - c) 6000
 - d) 5000
- 5) For protection of level crossing gate in an emergency on BG. Double line, the gateman should place one detonator at one place & three detonator at subsequent place at a distance of _____ m & _____ m respectively.
 - a) 400 m & 800 m
 - b) 600 m & 1200 m
 - c) 500 m & 1000 m
 - d) 300 m & 900 m
- 6) At all manned level crossing, where visibility is poor, about 15 to 20 rumble strips should be provided spaced at _____ metres from centre to centre.
 - a) 1.0 m
 - b) 0.5 m
 - c) 1.5 m
 - d) 2.0 m
- 7) Periodical census of traffic for unmanned level crossings should be done.
 - a) Once in six years
 - b) Once in one year
 - c) Once in 3 years
 - d) Once in five years

- 8) Traffic passing through 'special class' level crossing should be more than _____ Train Vehicle Unit (TVU).
- a) 10000 to 20000 b) 30000 to 50000
c) 20000 to 30000 d) Above 50000
- 9) Indication post for detonators should be provide data at a distance of _____ m & _____ m for B.G. Level crossing.
- a) 400 m & 800 m b) 500 m & 1200 m
c) 600 m & 1200 m d) 600 m & 1000 m
- 10) For protection of level crossing gate in an emergency on BG. Double line, the gateman should place one detonator at one place & three detonator at subsequent place at a distance of _____ m & _____ m respectively.
- a) 400 m & 800 m b) 600 m & 1200 m
c) 500 m & 1000 m d) 300 m & 900 m
- 11) In an unmanned Level crossing, stop board should be provided at a distance of from the centre of nearest track _____.
- a) 5 m b) 10 m
c) 7.5 m d) None of these
- 12) Replacement of swing gates by lifting bander existing manned Level Crossings shall be carried out where TVU is more than _____.
- a) 4000 b) 50,000
c) 40,000 d) 60,000
- 13) TSR is recommended when the % age of unserviceable sleeper become more than _____.
- a) 20% b) 40%
c) 30% d) None of these
- 14) Through renewal of rubber pads shall be planned after _____ years.
- a) 7 b) 6
c) 5 d) 4

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 8 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 6, 7 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | | |
|------------|-----------|-------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Discuss the need of mechanized maintenance of railway track. | 05 |
| | b) | With the help of diagram, illustrate the tamping procedure. | 05 |
| Q.3 | a) | Elaborate the classification track renewals. | 04 |
| | b) | Explain the renewal of Sleepers. | 05 |
| Q.4 | a) | Illustrate the whistle board with a neat diagram. | 04 |
| | b) | Illustrate the speed braker with a neat diagram. | 05 |
| Q.5 | a) | Describe the chemical and mechanical composition of all types of steel used in Indian Railway tracks. | 05 |
| | b) | Explain the handling process of rails. | 04 |

Section – II

- | | | | |
|------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Illustrate the reasons behind defects found in Rails. | 04 |
| | b) | Elaborate with the help of a diagram details of LWR. | 05 |
| Q.7 | a) | With the help of diagram explain Alumina Thermite process. | 04 |
| | b) | Identify the various types of derailments and mention the aspects of derailments. | 05 |
| Q.8 | a) | Explain diamond crossing with help of diagram. | 05 |
| | b) | A main line track on BG is having LWR of 52 kgs Laid at 40°C. The maximum rail temperature is 60°C and the minimum rail temperature is 0°C. Calculate the following:
i) Tension in rail
ii) Compression in rail
iii) Tensile stress and
iv) Compressive stress | 05 |
| Q.9 | a) | Illustrate the requirement of Railway station. (at least six points) | 04 |
| | b) | Discuss Nadal's Formula and its application. | 05 |

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) When the Train Vehicle unit exceeds. TVU or visibility is poor as in the case of an unmanned level crossing, the same is considered as accident prone and action should be taken to man such level crossings in a phased manner.

a) <2500	b) 10000
c) 6000	d) 5000
- 2) For protection of level crossing gate in an emergency on BG. Double line, the gateman should place one detonator at one place & three detonator at subsequent place at a distance of _____ m & _____m respectively.

a) 400 m & 800 m	b) 600 m & 1200 m
c) 500 m & 1000 m	d) 300 m & 900 m
- 3) At all manned level crossing, where visibility is poor, about 15 to 20 rumble strips should be provided spaced at _____ metres from centre to centre.

a) 1.0 m	b) 0.5 m
c) 1.5 m	d) 2.0 m
- 4) Periodical census of traffic for unmanned level crossings should be done.

a) Once in six years	b) Once in one year
c) Once in 3 years	d) Once in five years
- 5) Traffic passing though 'special class' level crossing should be more than _____ Train Vehicle Unit (TVU).

a) 10000 to 20000	b) 30000 to 50000
c) 20000 to 30000	d) Above 50000
- 6) Indication post for detonators should be provide data at a distance of _____ m & _____ m for B.G. Level crossing.

a) 400 m & 800 m	b) 500 m & 1200 m
c) 600 m & 1200 m	d) 600 m & 1000 m

- 7) For protection of level crossing gate in an emergency on BG. Double line, the gateman should place one detonator at one place & three detonator at subsequent place at a distance of _____ m & _____ m respectively.
- a) 400 m & 800 m b) 600 m & 1200 m
c) 500 m & 1000 m d) 300 m & 900 m
- 8) In an unmanned Level crossing, stop board should be provided at a distance of from the centre of nearest track _____.
- a) 5 m b) 10 m
c) 7.5 m d) None of these
- 9) Replacement of swing gates by lifting bander existing manned Level Crossings shall be carried out where TVU is more than _____.
- a) 4000 b) 50,000
c) 40,000 d) 60,000
- 10) TSR is recommended when the % age of unserviceable sleeper become more than _____.
- a) 20% b) 40%
c) 30% d) None of these
- 11) Through renewal of rubber pads shall be planned after _____ years.
- a) 7 b) 6
c) 5 d) 4
- 12) What is the limiting loss of section in 52 kg. rail?
- a) 4% b) 8%
c) 10% d) 6%
- 13) The service life of 60 kg. 90 UTS rail in GMT is _____.
- a) 800 b) 1500
c) 1000 d) None of these
- 14) The service life of 52 kg. 72 UTS rails _____ in GMT.
- a) 350 b) 250
c) 325 d) 550

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 8 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 6, 7 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | |
|------------|-----------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Discuss the need of mechanized maintenance of railway track. | 05 |
| | b) With the help of diagram, illustrate the tamping procedure. | 05 |
| Q.3 | a) Elaborate the classification track renewals. | 04 |
| | b) Explain the renewal of Sleepers. | 05 |
| Q.4 | a) Illustrate the whistle board with a neat diagram. | 04 |
| | b) Illustrate the speed braker with a neat diagram. | 05 |
| Q.5 | a) Describe the chemical and mechanical composition of all types of steel used in Indian Railway tracks. | 05 |
| | b) Explain the handling process of rails. | 04 |

Section – II

- | | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Illustrate the reasons behind defects found in Rails. | 04 |
| | b) Elaborate with the help of a diagram details of LWR. | 05 |
| Q.7 | a) With the help of diagram explain Alumina Thermite process. | 04 |
| | b) Identify the various types of derailments and mention the aspects of derailments. | 05 |
| Q.8 | a) Explain diamond crossing with help of diagram. | 05 |
| | b) A main line track on BG is having LWR of 52 kgs Laid at 40°C. The maximum rail temperature is 60°C and the minimum rail temperature is 0°C. Calculate the following: | 05 |
| | i) Tension in rail | |
| | ii) Compression in rail | |
| | iii) Tensile stress and | |
| | iv) Compressive stress | |
| Q.9 | a) Illustrate the requirement of Railway station. (at least six points) | 04 |
| | b) Discuss Nadal's Formula and its application. | 05 |

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New/Old) (CBCS) Examination:
March/April -2024**

CIVIL ENGINEERING

Advanced Railway Track (197042714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
2) Question no. 8 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 6, 7 & 9)
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | |
|------------|-----------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Discuss the need of mechanized maintenance of railway track. | 05 |
| | b) With the help of diagram, illustrate the tamping procedure. | 05 |
| Q.3 | a) Elaborate the classification track renewals. | 04 |
| | b) Explain the renewal of Sleepers. | 05 |
| Q.4 | a) Illustrate the whistle board with a neat diagram. | 04 |
| | b) Illustrate the speed braker with a neat diagram. | 05 |
| Q.5 | a) Describe the chemical and mechanical composition of all types of steel used in Indian Railway tracks. | 05 |
| | b) Explain the handling process of rails. | 04 |

Section – II

- | | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Illustrate the reasons behind defects found in Rails. | 04 |
| | b) Elaborate with the help of a diagram details of LWR. | 05 |
| Q.7 | a) With the help of diagram explain Alumina Thermite process. | 04 |
| | b) Identify the various types of derailments and mention the aspects of derailments. | 05 |
| Q.8 | a) Explain diamond crossing with help of diagram. | 05 |
| | b) A main line track on BG is having LWR of 52 kgs Laid at 40°C. The maximum rail temperature is 60°C and the minimum rail temperature is 0°C. Calculate the following: | 05 |
| | i) Tension in rail | |
| | ii) Compression in rail | |
| | iii) Tensile stress and | |
| | iv) Compressive stress | |
| Q.9 | a) Illustrate the requirement of Railway station. (at least six points) | 04 |
| | b) Discuss Nadal's Formula and its application. | 05 |

Seat No.	
-------------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options

14

- 1) _____ is a line of thought in management which Stresses the interactive nature and interdependence in an organization.
 - a) System analysis
 - b) System approach
 - c) Quantitative methods
 - d) System programming
- 2) _____ is a mathematics with the application of scientific methods and techniques to decision making problems for optimal solutions.
 - a) Linear programming
 - b) Statistical Methods
 - c) Statistical analysis
 - d) Operation research
- 3) _____ is an element factor that restrict project or system from achieving its potential reference to its variables.
 - a) Optimization
 - b) Constrains
 - c) Dynamic Programming
 - d) Building Model
- 4) _____ represent the total number of individuals in a habitat and also its potential for long term survival.
 - a) Population size
 - b) Population age
 - c) Population dispersion
 - d) Population density
- 5) _____ is a use of system analysis and simulation to minimize complex of ecological system.
 - a) Environmental modeling
 - b) Reality & Real system
 - c) Ecological modeling
 - d) Conceptual model
- 6) _____ is the study of population in relation to environment including environmental influences on population density and distribution.
 - a) Population dynamics
 - b) Population ecology
 - c) Population dispersion model
 - d) Population Simulation

- 7) An integrated system combines and optimize waste collective system by effective sorting followed by one or more options _____.
- Material recycling
 - Biological treatment
 - Thermal treatment and sanitary landfill
 - All of above
- 8) The _____ of municipal wastes refers to concept of long term planning process that involve anticipated changes in future.
- Integrated Waste management
 - Strategic planning
 - Environmental Planning
 - System analysis
- 9) The _____ delivers the incoming flow rate and the concentration for s11 components in wastewater model.
- Inflow model
 - Outflow model
 - Strategic flow model
 - Dynamic flow model
- 10) The concentration of particular component in the sludge flow is calculated with _____ and depend on flow rate.
- C:N ratio
 - BOD
 - Mass balance
 - Nutrient Removal
- 11) _____ is an optimization method applicable for the solution of problems in which objective functions and constrains appear.
- Non-Linear programming
 - Linear programming
 - Graphical programming
 - Continuity Equations
- 12) _____ helps to visualize and also helps to understand different terminologies associated with the solution of linear programming.
- Graphical Method
 - Simplex Method
 - Linear programming
 - Stochastic programming
- 13) _____ means of estimating downwind air pollution concentrations and information about pollutant emission and nature of atmosphere.
- Gaussian Plume model
 - Dispersion Model
 - Atmospheric dispersion model
 - Meteorological model
- 14) _____ gives the concentration estimates within an order of magnitude for continuous releases over homogeneous terrain.
- Source dispersion model
 - Emission Model
 - Receptor model
 - Gaussian plume model

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 2 is compulsory in Section I, and solve any two questions from the remaining.
2) Question No. 6 is compulsory in Section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|--------------------------|------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain the use of System approach in civil Engineering. | 05 |
| | b) | Explain the Benefits of Integrated waste Management | 05 |
| Q.3 | a) | Explain the concepts and principle of Population dynamics. | 05 |
| | b) | Explain the characteristics of Population ecology. | 04 |
| Q.4 | a) | Explain the elements of integrated waste management with neat diagram. | 04 |
| | b) | Explain with neat sketch the model of sustainable waste management. | 05 |
| Q.5 | Write Short Notes | | |
| | a) | Building Modeling | 05 |
| | b) | Scope of system approach in civil Engineering | 04 |

Section – II

- | | | | |
|------------|---------------------------|---------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the salient features of Optimization. | 05 |
| | b) | Explain with a neat diagram the strategies of wastewater treatment process and its control. | 05 |
| Q.7 | a) | Explain the point source Gaussian plume model. | 05 |
| | b) | Explain the equation of continuity for rectangular model. | 04 |
| Q.8 | a) | Explain inflow model for incoming flow. | 05 |
| | b) | Explain Linear programming and its applications in civil engineering. | 04 |
| Q.9 | Write short notes. | | |
| | a) | Pollutant Standard Index criteria | 05 |
| | b) | Concepts of wastewater model | 04 |

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options

14

- 1) The _____ of municipal wastes refers to concept of long term planning process that involve anticipated changes in future.
 - a) Integrated Waste management
 - b) Strategic planning
 - c) Environmental Planning
 - d) System analysis
- 2) The _____ delivers the incoming flow rate and the concentration for s11 components in wastewater model.
 - a) Inflow model
 - b) Outflow model
 - c) Strategic flow model
 - d) Dynamic flow model
- 3) The concentration of particular component in the sludge flow is calculated with _____ and depend on flow rate.
 - a) C:N ratio
 - b) BOD
 - c) Mass balance
 - d) Nutrient Removal
- 4) _____ is an optimization method applicable for the solution of problems in which objective functions and constrains appear.
 - a) Non-Linear programming
 - b) Linear programming
 - c) Graphical programming
 - d) Continuity Equations
- 5) _____ helps to visualize and also helps to understand different terminologies associated with the solution of linear programming.
 - a) Graphical Method
 - b) Simplex Method
 - c) Linear programming
 - d) Stochastic programming
- 6) _____ means of estimating downwind air pollution concentrations and information about pollutant emission and nature of atmosphere.
 - a) Gaussian Plume model
 - b) Dispersion Model
 - c) Atmospheric dispersion model
 - d) Meteorological model

- 7) _____ gives the concentration estimates within an order of magnitude for continuous releases over homogeneous terrain.
- a) Source dispersion model b) Emission Model
c) Receptor model d) Gaussian plume model
- 8) _____ is a line of thought in management which Stresses the interactive nature and interdependence in an organization.
- a) System analysis b) System approach
c) Quantitative methods d) System programming
- 9) _____ is a mathematics with the application of scientific methods and techniques to decision making problems for optimal solutions.
- a) Linear programming b) Statistical Methods
c) Statistical analysis d) Operation research
- 10) _____ is an element factor that restrict project or system from achieving its potential reference to its variables.
- a) Optimization b) Constrains
c) Dynamic Programming d) Building Model
- 11) _____ represent the total number of individuals in a habitat and also its potential for long term survival.
- a) Population size b) Population age
c) Population dispersion d) Population density
- 12) _____ is a use of system analysis and simulation to minimize complex of ecological system.
- a) Environmental modeling b) Reality & Real system
c) Ecological modeling d) Conceptual model
- 13) _____ is the study of population in relation to environment including environmental influences on population density and distribution.
- a) Population dynamics b) Population ecology
c) Population dispersion model d) Population Simulation
- 14) An integrated system combines and optimize waste collective system by effective sorting followed by one or more options _____.
- a) Material recycling
b) Biological treatment
c) Thermal treatment and sanitary landfill
d) All of above

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 2 is compulsory in Section I, and solve any two questions from the remaining.
2) Question No. 6 is compulsory in Section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|--------------------------|------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain the use of System approach in civil Engineering. | 05 |
| | b) | Explain the Benefits of Integrated waste Management | 05 |
| Q.3 | a) | Explain the concepts and principle of Population dynamics. | 05 |
| | b) | Explain the characteristics of Population ecology. | 04 |
| Q.4 | a) | Explain the elements of integrated waste management with neat diagram. | 04 |
| | b) | Explain with neat sketch the model of sustainable waste management. | 05 |
| Q.5 | Write Short Notes | | |
| | a) | Building Modeling | 05 |
| | b) | Scope of system approach in civil Engineering | 04 |

Section – II

- | | | | |
|------------|---------------------------|---------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the salient features of Optimization. | 05 |
| | b) | Explain with a neat diagram the strategies of wastewater treatment process and its control. | 05 |
| Q.7 | a) | Explain the point source Gaussian plume model. | 05 |
| | b) | Explain the equation of continuity for rectangular model. | 04 |
| Q.8 | a) | Explain inflow model for incoming flow. | 05 |
| | b) | Explain Linear programming and its applications in civil engineering. | 04 |
| Q.9 | Write short notes. | | |
| | a) | Pollutant Standard Index criteria | 05 |
| | b) | Concepts of wastewater model | 04 |

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options

14

- 1) _____ is an optimization method applicable for the solution of problems in which objective functions and constrains appear.
 - a) Non-Linear programming
 - b) Linear programming
 - c) Graphical programming
 - d) Continuity Equations
- 2) _____ helps to visualize and also helps to understand different terminologies associated with the solution of linear programming.
 - a) Graphical Method
 - b) Simplex Method
 - c) Linear programming
 - d) Stochastic programming
- 3) _____ means of estimating downwind air pollution concentrations and information about pollutant emission and nature of atmosphere.
 - a) Gaussian Plume model
 - b) Dispersion Model
 - c) Atmospheric dispersion model
 - d) Meteorological model
- 4) _____ gives the concentration estimates within an order of magnitude for continuous releases over homogeneous terrain.
 - a) Source dispersion model
 - b) Emission Model
 - c) Receptor model
 - d) Gaussian plume model
- 5) _____ is a line of thought in management which Stresses the interactive nature and interdependence in an organization.
 - a) System analysis
 - b) System approach
 - c) Quantitative methods
 - d) System programming
- 6) _____ is a mathematics with the application of scientific methods and techniques to decision making problems for optimal solutions.
 - a) Linear programming
 - b) Statistical Methods
 - c) Statistical analysis
 - d) Operation research
- 7) _____ is an element factor that restrict project or system from achieving its potential reference to its variables.
 - a) Optimization
 - b) Constrains
 - c) Dynamic Programming
 - d) Building Model

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 2 is compulsory in Section I, and solve any two questions from the remaining.
2) Question No. 6 is compulsory in Section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|--------------------------|------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain the use of System approach in civil Engineering. | 05 |
| | b) | Explain the Benefits of Integrated waste Management | 05 |
| Q.3 | a) | Explain the concepts and principle of Population dynamics. | 05 |
| | b) | Explain the characteristics of Population ecology. | 04 |
| Q.4 | a) | Explain the elements of integrated waste management with neat diagram. | 04 |
| | b) | Explain with neat sketch the model of sustainable waste management. | 05 |
| Q.5 | Write Short Notes | | |
| | a) | Building Modeling | 05 |
| | b) | Scope of system approach in civil Engineering | 04 |

Section – II

- | | | | |
|------------|---------------------------|---------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the salient features of Optimization. | 05 |
| | b) | Explain with a neat diagram the strategies of wastewater treatment process and its control. | 05 |
| Q.7 | a) | Explain the point source Gaussian plume model. | 05 |
| | b) | Explain the equation of continuity for rectangular model. | 04 |
| Q.8 | a) | Explain inflow model for incoming flow. | 05 |
| | b) | Explain Linear programming and its applications in civil engineering. | 04 |
| Q.9 | Write short notes. | | |
| | a) | Pollutant Standard Index criteria | 05 |
| | b) | Concepts of wastewater model | 04 |

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options

14

- 1) _____ is the study of population in relation to environment including environmental influences on population density and distribution.
 - a) Population dynamics
 - b) Population ecology
 - c) Population dispersion model
 - d) Population Simulation
- 2) An integrated system combines and optimize waste collective system by effective sorting followed by one or more options _____.
 - a) Material recycling
 - b) Biological treatment
 - c) Thermal treatment and sanitary landfill
 - d) All of above
- 3) The _____ of municipal wastes refers to concept of long term planning process that involve anticipated changes in future.
 - a) Integrated Waste management
 - b) Strategic planning
 - c) Environmental Planning
 - d) System analysis
- 4) The _____ delivers the incoming flow rate and the concentration for s11 components in wastewater model.
 - a) Inflow model
 - b) Outflow model
 - c) Strategic flow model
 - d) Dynamic flow model
- 5) The concentration of particular component in the sludge flow is calculated with _____ and depend on flow rate.
 - a) C:N ratio
 - b) BOD
 - c) Mass balance
 - d) Nutrient Removal
- 6) _____ is an optimization method applicable for the solution of problems in which objective functions and constrains appear.
 - a) Non-Linear programming
 - b) Linear programming
 - c) Graphical programming
 - d) Continuity Equations

- 7) _____ helps to visualize and also helps to understand different terminologies associated with the solution of linear programming.
- a) Graphical Method b) Simplex Method
c) Linear programming d) Stochastic programming
- 8) _____ means of estimating downwind air pollution concentrations and information about pollutant emission and nature of atmosphere.
- a) Gaussian Plume model b) Dispersion Model
c) Atmospheric dispersion model d) Meteorological model
- 9) _____ gives the concentration estimates within an order of magnitude for continuous releases over homogeneous terrain.
- a) Source dispersion model b) Emission Model
c) Receptor model d) Gaussian plume model
- 10) _____ is a line of thought in management which Stresses the interactive nature and interdependence in an organization.
- a) System analysis b) System approach
c) Quantitative methods d) System programming
- 11) _____ is a mathematics with the application of scientific methods and techniques to decision making problems for optimal solutions.
- a) Linear programming b) Statistical Methods
c) Statistical analysis d) Operation research
- 12) _____ is an element factor that restrict project or system from achieving its potential reference to its variables.
- a) Optimization b) Constrains
c) Dynamic Programming d) Building Model
- 13) _____ represent the total number of individuals in a habitat and also its potential for long term survival.
- a) Population size b) Population age
c) Population dispersion d) Population density
- 14) _____ is a use of system analysis and simulation to minimize complex of ecological system.
- a) Environmental modeling b) Reality & Real system
c) Ecological modeling d) Conceptual model

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April -2024
CIVIL ENGINEERING
Environmental Systems (197042716)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question No. 2 is compulsory in Section I, and solve any two questions from the remaining.
2) Question No. 6 is compulsory in Section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programable calculator is allowed.

Section – I

- | | | | |
|------------|--------------------------|------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain the use of System approach in civil Engineering. | 05 |
| | b) | Explain the Benefits of Integrated waste Management | 05 |
| Q.3 | a) | Explain the concepts and principle of Population dynamics. | 05 |
| | b) | Explain the characteristics of Population ecology. | 04 |
| Q.4 | a) | Explain the elements of integrated waste management with neat diagram. | 04 |
| | b) | Explain with neat sketch the model of sustainable waste management. | 05 |
| Q.5 | Write Short Notes | | |
| | a) | Building Modeling | 05 |
| | b) | Scope of system approach in civil Engineering | 04 |

Section – II

- | | | | |
|------------|---------------------------|---------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the salient features of Optimization. | 05 |
| | b) | Explain with a neat diagram the strategies of wastewater treatment process and its control. | 05 |
| Q.7 | a) | Explain the point source Gaussian plume model. | 05 |
| | b) | Explain the equation of continuity for rectangular model. | 04 |
| Q.8 | a) | Explain inflow model for incoming flow. | 05 |
| | b) | Explain Linear programming and its applications in civil engineering. | 04 |
| Q.9 | Write short notes. | | |
| | a) | Pollutant Standard Index criteria | 05 |
| | b) | Concepts of wastewater model | 04 |

Seat No.	
-------------	--

Set P

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.
 - 5) Use of only non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A nuclear power plant is variably used as a _____.
a) base load plant b) peak load plant
c) stand by plant d) None
- 2) The load factor for the peak day of the year determines the required _____.
a) Water storage b) Pondage
c) Generating capacity d) None
- 3) Minimum pressure occurs in fall flowing power tunnel at the time of _____.
a) load rejection b) load acceptance
c) head race d) fall race
- 4) Unit power in a turbine is _____.
a) $P/H^{1/2}$ b) P/H
c) $P/H^{3/2}$ d) $P/H^{3/4}$
- 5) The pumped storage scheme is employed to supply water _____.
a) during the off-peak hours b) during the peak hours
c) system base load d) none of above
- 6) The draft tube is provided to _____.
a) reduce the effect of water hammer
b) raise the water surface of the stream to create an artificial head
c) increase the artificial head on the water wheel
d) none of the above
- 7) The flow through penstocks and pressure conducts is generally _____.
a) laminar b) turbulent
c) both a) and b) d) none of these
- 8) The specific speeds of Pelton wheel, Francis and Kaplan turbines are in _____.
a) Increasing order
b) Decreasing order
c) Neither increasing nor decreasing order
d) none

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicates full marks.
 - 3) Draw neat labelled diagrams whenever necessary.
 - 4) Use of only non-programmable calculator is allowed.
 - 5) Assume suitable data wherever necessary.

Section – I

Q.2 Solve Any Four. 16

- a) What do you understand by non-conventional sources of power generation? What is the scope of these sources in India?
- b) What are the different salient factors to be considered in deciding the alignment of a tunnel in a hydroelectric project?
- c) What are the various objectives of planning for water power development?
- d) When a run of river plant operates as a peak load stations with a weekly load factor of 24%, all its capacity is firm capacity. What will be the minimum flow in the river so that the station may serve as the base load stations. It is given that, Installed capacity of generator = 11,000 kW, Operating Head = 15 m, Plant efficiency = 84%, estimate the daily load factor of the plant if the stream flow is 25 cumecs.
- e) Assuming that the daily flow in a river is 20 m³/ sec, what would be the firm capacity of run of river plant to be used as 8 hours peak load station? What would be the pondage factor and the magnitude of the pondage? Head of the plant is 12 m. Overall efficiency is 85 %.

Q.3 Solve Any Two. 12

- a) What do you understand by base load and peak load power plants? What factors are considered in selecting a plant as base load plant or peak load plant?
- b) A penstock, with an internal diameter 1.0 m, supplies water at a head equivalent to 15 kg/cm². There is a possibility of 24% in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1000 kg/cm² and 86% resp. Find the wall thickness of penstock.
- c) What do you understand by Run of river plants? What are the parts and arrangement of such plants? Draw a neat sketch.

Section – II

Q.4 Solve Any Four. **16**

- a) Which factors are considered in deciding the setting of Pelton wheel in horizontal plane and in vertical plane?
- b) Explain the function of Anchor block and enlist the forces acting on it.
- c) What do you understand by 'pump storage plant'? What are the advantages and disadvantages of this power plant?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase. 50 hertz generation. The generation are provided with 10 pairs of poles. The gross design head is 500 m and transmission efficiency of head race tunnel and penstocks together is to be 95%. The four units together will provide for a power of 350000 hp at a guaranteed efficiency of 90%. The nozzle efficiency is 0.98.
Find:
 - i) Design discharge for the turbine
 - ii) Jet dia. and no. of jets
 - iii) Nozzle tip diameter
 - iv) Pitch circle dia. of the wheel
- e) Enlist the different types of Draft tubes and write the advantages of them.

Q.5 Solve Any Two. **12**

- a) A closed cycle power plant with gross head 350 m has head race tunnel of 4.0 m dia. and 750 m long. Flow velocity is 8.0 m/s and coefficient of friction 0.015 overall efficiency of pumping and generation at 88% and 90% respectively, Calculate plant efficiency.
- b) What topographical features are in favour of adopting underground power plant? What are the different types of underground power stations? Draw a neat layout.
- c) Explain the various methods of Tidal power generation. What are the limitations of each method? (Draw neat sketches)

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.
5) Use of only non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The specific speeds of Pelton wheel, Francis and Kaplan turbines are in _____.
 - a) Increasing order
 - b) Decreasing order
 - c) Neither increasing nor decreasing order
 - d) none
- 2) A turbine is called reaction turbine if at the inlet of turbine, the total energy is _____.
 - a) kinetic
 - b) pressure
 - c) kinetic and pressure
 - d) none
- 3) In hydro electric power station what is an enlarge body of water just above the intake and used as a regulating reservoir called _____.
 - a) Penstock
 - b) spillways
 - c) reservoir
 - d) Fore bay
- 4) The draft tube is provided to _____.
 - a) reduce the effect of water hammer
 - b) raise the water surface of the stream to create an artificial head
 - c) increase the acting head on the water wheel
 - d) None of the above
- 5) Cavitation in a turbine causes _____.
 - a) low efficiency
 - b) blade surface is damaged
 - c) vibration and noise
 - d) none of the above
- 6) For harnessing low variable water heads the suitable hydraulic turbine with reaction and adjustable vanes is _____.
 - a) Pelton
 - b) Francis
 - c) Impeller
 - d) Kaplan
- 7) Surge tank is necessarily provided for _____.
 - a) long penstocks
 - b) short length penstocks
 - c) surface penstocks
 - d) embedded penstocks

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicates full marks.
 - 3) Draw neat labelled diagrams whenever necessary.
 - 4) Use of only non-programmable calculator is allowed.
 - 5) Assume suitable data wherever necessary.

Section – I

Q.2 Solve Any Four. 16

- a) What do you understand by non-conventional sources of power generation? What is the scope of these sources in India?
- b) What are the different salient factors to be considered in deciding the alignment of a tunnel in a hydroelectric project?
- c) What are the various objectives of planning for water power development?
- d) When a run of river plant operates as a peak load stations with a weekly load factor of 24%, all its capacity is firm capacity. What will be the minimum flow in the river so that the station may serve as the base load stations. It is given that, Installed capacity of generator = 11,000 kW, Operating Head = 15 m, Plant efficiency = 84%, estimate the daily load factor of the plant if the stream flow is 25 cumecs.
- e) Assuming that the daily flow in a river is 20 m³/ sec, what would be the firm capacity of run of river plant to be used as 8 hours peak load station? What would be the pondage factor and the magnitude of the pondage? Head of the plant is 12 m. Overall efficiency is 85 %.

Q.3 Solve Any Two. 12

- a) What do you understand by base load and peak load power plants? What factors are considered in selecting a plant as base load plant or peak load plant?
- b) A penstock, with an internal diameter 1.0 m, supplies water at a head equivalent to 15 kg/cm². There is a possibility of 24% in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1000 kg/cm² and 86% resp. Find the wall thickness of penstock.
- c) What do you understand by Run of river plants? What are the parts and arrangement of such plants? Draw a neat sketch.

Section – II

Q.4 Solve Any Four. **16**

- a) Which factors are considered in deciding the setting of Pelton wheel in horizontal plane and in vertical plane?
- b) Explain the function of Anchor block and enlist the forces acting on it.
- c) What do you understand by 'pump storage plant'? What are the advantages and disadvantages of this power plant?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase. 50 hertz generation. The generation are provided with 10 pairs of poles. The gross design head is 500 m and transmission efficiency of head race tunnel and penstocks together is to be 95%. The four units together will provide for a power of 350000 hp at a guaranteed efficiency of 90%. The nozzle efficiency is 0.98.
Find:
 - i) Design discharge for the turbine
 - ii) Jet dia. and no. of jets
 - iii) Nozzle tip diameter
 - iv) Pitch circle dia. of the wheel
- e) Enlist the different types of Draft tubes and write the advantages of them.

Q.5 Solve Any Two. **12**

- a) A closed cycle power plant with gross head 350 m has head race tunnel of 4.0 m dia. and 750 m long. Flow velocity is 8.0 m/s and coefficient of friction 0.015 overall efficiency of pumping and generation at 88% and 90% respectively, Calculate plant efficiency.
- b) What topographical features are in favour of adopting underground power plant? What are the different types of underground power stations? Draw a neat layout.
- c) Explain the various methods of Tidal power generation. What are the limitations of each method? (Draw neat sketches)

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.
5) Use of only non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The draft tube is provided to _____.
a) reduce the effect of water hammer
b) raise the water surface of the stream to create an artificial head
c) increase the acting head on the water wheel
d) None of the above
- 2) Cavitation in a turbine causes _____.
a) low efficiency
b) blade surface is damaged
c) vibration and noise
d) none of the above
- 3) For harnessing low variable water heads the suitable hydraulic turbine with reaction and adjustable vanes is _____.
a) Pelton
b) Francis
c) Impeller
d) Kaplan
- 4) Surge tank is necessarily provided for _____.
a) long penstocks
b) short length penstocks
c) surface penstocks
d) embedded penstocks
- 5) A nuclear power plant is variably used as a _____.
a) base load plant
b) peak load plant
c) stand by plant
d) None
- 6) The load factor for the peak day of the year determines the required _____.
a) Water storage
b) Pondage
c) Generating capacity
d) None
- 7) Minimum pressure occurs in fall flowing power tunnel at the time of _____.
a) load rejection
b) load acceptance
c) head race
d) fail race
- 8) Unit power in a turbine is _____.
a) $P/H^{1/2}$
b) P/H
c) $P/H^{3/2}$
d) $P/H^{3/4}$

- 9) The pumped storage scheme is employed to supply water _____.
a) during the off-peak hours b) during the peak hours
c) system base load d) none of above
- 10) The draft tube is provided to _____.
a) reduce the effect of water hammer
b) raise the water surface of the stream to create an artificial head
c) increase the artificial head on the water wheel
d) none of the above
- 11) The flow through penstocks and pressure conducts is generally _____.
a) laminar b) turbulent
c) both a) and b) d) none of these
- 12) The specific speeds of Pelton wheel, Francis and Kaplan turbines are in _____.
a) Increasing order
b) Decreasing order
c) Neither increasing nor decreasing order
d) none
- 13) A turbine is called reaction turbine if at the inlet of turbine, the total energy is _____.
a) kinetic b) pressure
c) kinetic and pressure d) none
- 14) In hydro electric power station what is an enlarge body of water just above the intake and used as a regulating reservoir called _____.
a) Penstock b) spillways
c) reservoir d) Fore bay

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicates full marks.
 - 3) Draw neat labelled diagrams whenever necessary.
 - 4) Use of only non-programmable calculator is allowed.
 - 5) Assume suitable data wherever necessary.

Section – I

Q.2 Solve Any Four. 16

- a) What do you understand by non-conventional sources of power generation? What is the scope of these sources in India?
- b) What are the different salient factors to be considered in deciding the alignment of a tunnel in a hydroelectric project?
- c) What are the various objectives of planning for water power development?
- d) When a run of river plant operates as a peak load stations with a weekly load factor of 24%, all its capacity is firm capacity. What will be the minimum flow in the river so that the station may serve as the base load stations. It is given that, Installed capacity of generator = 11,000 kW, Operating Head = 15 m, Plant efficiency = 84%, estimate the daily load factor of the plant if the stream flow is 25 cumecs.
- e) Assuming that the daily flow in a river is 20 m³/ sec, what would be the firm capacity of run of river plant to be used as 8 hours peak load station? What would be the pondage factor and the magnitude of the pondage? Head of the plant is 12 m. Overall efficiency is 85 %.

Q.3 Solve Any Two. 12

- a) What do you understand by base load and peak load power plants? What factors are considered in selecting a plant as base load plant or peak load plant?
- b) A penstock, with an internal diameter 1.0 m, supplies water at a head equivalent to 15 kg/cm². There is a possibility of 24% in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1000 kg/cm² and 86% resp. Find the wall thickness of penstock.
- c) What do you understand by Run of river plants? What are the parts and arrangement of such plants? Draw a neat sketch.

Section – II

Q.4 Solve Any Four. **16**

- a) Which factors are considered in deciding the setting of Pelton wheel in horizontal plane and in vertical plane?
- b) Explain the function of Anchor block and enlist the forces acting on it.
- c) What do you understand by 'pump storage plant'? What are the advantages and disadvantages of this power plant?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase. 50 hertz generation. The generation are provided with 10 pairs of poles. The gross design head is 500 m and transmission efficiency of head race tunnel and penstocks together is to be 95%. The four units together will provide for a power of 350000 hp at a guaranteed efficiency of 90%. The nozzle efficiency is 0.98.
Find:
 - i) Design discharge for the turbine
 - ii) Jet dia. and no. of jets
 - iii) Nozzle tip diameter
 - iv) Pitch circle dia. of the wheel
- e) Enlist the different types of Draft tubes and write the advantages of them.

Q.5 Solve Any Two. **12**

- a) A closed cycle power plant with gross head 350 m has head race tunnel of 4.0 m dia. and 750 m long. Flow velocity is 8.0 m/s and coefficient of friction 0.015 overall efficiency of pumping and generation at 88% and 90% respectively, Calculate plant efficiency.
- b) What topographical features are in favour of adopting underground power plant? What are the different types of underground power stations? Draw a neat layout.
- c) Explain the various methods of Tidal power generation. What are the limitations of each method? (Draw neat sketches)

Seat No.	
-------------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.
5) Use of only non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The draft tube is provided to _____.
a) reduce the effect of water hammer
b) raise the water surface of the stream to create an artificial head
c) increase the artificial head on the water wheel
d) none of the above
- 2) The flow through penstocks and pressure conducts is generally _____.
a) laminar
b) turbulent
c) both a) and b)
d) none of these
- 3) The specific speeds of Pelton wheel, Francis and Kaplan turbines are in _____.
a) Increasing order
b) Decreasing order
c) Neither increasing nor decreasing order
d) none
- 4) A turbine is called reaction turbine if at the inlet of turbine, the total energy is _____.
a) kinetic
b) pressure
c) kinetic and pressure
d) none
- 5) In hydro electric power station what is an enlarge body of water just above the intake and used as a regulating reservoir called _____.
a) Penstock
b) spillways
c) reservoir
d) Fore bay
- 6) The draft tube is provided to _____.
a) reduce the effect of water hammer
b) raise the water surface of the stream to create an artificial head
c) increase the acting head on the water wheel
d) None of the above
- 7) Cavitation in a turbine causes _____.
a) low efficiency
b) blade surface is damaged
c) vibration and noise
d) none of the above

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New/Old) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Water Power Engineering (197042717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicates full marks.
 - 3) Draw neat labelled diagrams whenever necessary.
 - 4) Use of only non-programmable calculator is allowed.
 - 5) Assume suitable data wherever necessary.

Section – I

Q.2 Solve Any Four. 16

- a) What do you understand by non-conventional sources of power generation? What is the scope of these sources in India?
- b) What are the different salient factors to be considered in deciding the alignment of a tunnel in a hydroelectric project?
- c) What are the various objectives of planning for water power development?
- d) When a run of river plant operates as a peak load stations with a weekly load factor of 24%, all its capacity is firm capacity. What will be the minimum flow in the river so that the station may serve as the base load stations. It is given that, Installed capacity of generator = 11,000 kW, Operating Head = 15 m, Plant efficiency = 84%, estimate the daily load factor of the plant if the stream flow is 25 cumecs.
- e) Assuming that the daily flow in a river is 20 m³/ sec, what would be the firm capacity of run of river plant to be used as 8 hours peak load station? What would be the pondage factor and the magnitude of the pondage? Head of the plant is 12 m. Overall efficiency is 85 %.

Q.3 Solve Any Two. 12

- a) What do you understand by base load and peak load power plants? What factors are considered in selecting a plant as base load plant or peak load plant?
- b) A penstock, with an internal diameter 1.0 m, supplies water at a head equivalent to 15 kg/cm². There is a possibility of 24% in the pressure due to transient conditions. The design stress and the efficiency of the joint may be assumed to be 1000 kg/cm² and 86% resp. Find the wall thickness of penstock.
- c) What do you understand by Run of river plants? What are the parts and arrangement of such plants? Draw a neat sketch.

Section – II

Q.4 Solve Any Four. **16**

- a) Which factors are considered in deciding the setting of Pelton wheel in horizontal plane and in vertical plane?
- b) Explain the function of Anchor block and enlist the forces acting on it.
- c) What do you understand by 'pump storage plant'? What are the advantages and disadvantages of this power plant?
- d) Power house is equipped with 4 units of vertical shaft Pelton turbines to be coupled with 80000 kVA, 3 phase. 50 hertz generation. The generation are provided with 10 pairs of poles. The gross design head is 500 m and transmission efficiency of head race tunnel and penstocks together is to be 95%. The four units together will provide for a power of 350000 hp at a guaranteed efficiency of 90%. The nozzle efficiency is 0.98.
Find:
 - i) Design discharge for the turbine
 - ii) Jet dia. and no. of jets
 - iii) Nozzle tip diameter
 - iv) Pitch circle dia. of the wheel
- e) Enlist the different types of Draft tubes and write the advantages of them.

Q.5 Solve Any Two. **12**

- a) A closed cycle power plant with gross head 350 m has head race tunnel of 4.0 m dia. and 750 m long. Flow velocity is 8.0 m/s and coefficient of friction 0.015 overall efficiency of pumping and generation at 88% and 90% respectively, Calculate plant efficiency.
- b) What topographical features are in favour of adopting underground power plant? What are the different types of underground power stations? Draw a neat layout.
- c) Explain the various methods of Tidal power generation. What are the limitations of each method? (Draw neat sketches)

Seat No.	
----------	--

Set

P

**Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) What is an ethical dilemma?
 - a) an issue caused by not following guidelines
 - b) conflict between what's right and what's wrong
 - c) same as a professional dilemma
 - d) moral conflict between values

- 2) _____ is the concept that describe the beliefs of an individual or culture.
 - a) Values
 - b) Attitude
 - c) Behaviour
 - d) Personality

- 3) In the _____ right conduct for an individual is regarded as whatever directly benefits oneself.
 - a) pre-conventional level
 - b) post-conventional level
 - c) conventional level
 - d) Final level

- 4) An agreement not enforceable by law is said to be _____.
 - a) A contract
 - b) Void
 - c) A voidable contract
 - d) A void contract

- 5) We use which among the following technique in business organizations and firms for protecting the IT assets?
 - a) Ethical hacking
 - b) Unethical hacking
 - c) Fixing bugs
 - d) Internal data-breach

- 6) A contract consists of _____.
 - a) Mutual promises or agreement enforceable by law
 - b) Agreement not enforceable by law
 - c) Involuntary obligations
 - d) None of these

- 7) Which of the following is not true with respect to Titanic disaster?
 - a) Adequate Life boats
 - b) Ship sailed at high speed in the night
 - c) It had hit against an ice berg
 - d) The ship tore into two parts due to hitting against iceberg

- 8) Which of the following is not true with respect to ensure a safety design?
- The maximum requirement is that a design must comply with the applicable laws.
 - An acceptable design must meet the standard of "accepted engineering practice."
 - Alternative designs that are potentially safer must be explored
 - Engineer must attempt to foresee potential misuses of the product by the consumer and must design to avoid these problems.
- 9) In _____, a neutral third party assists the disputing parties in reaching a settlement of their dispute.
- Infiltration
 - Arbitration
 - Mediation
 - Negotiation
- 10) Which of the following stakeholder has the responsibility of prescribing norms to ensure safety of the citizens?
- Government
 - Professional Societies
 - Standardization Bodies
 - All of these
- 11) What does a trademark protect?
- An invention
 - Logos, names and brands
 - The look, shape and feel of a product
 - A secret formula
- 12) How long do patents usually last for?
- 10 years
 - 20 years
 - 40 years
 - 60 years
- 13) Safety provisions in Indian Factory Act does not cover _____.
- Fencing of machinery
 - Precaution against fire
 - Lunch rooms
 - Protection eyes
- 14) Which of the following matter are not referred to arbitration?
- Civil matters
 - Matrimonial matters
 - Banking matters
 - Property matters
- 15) Copyright law gives _____ exclusive rights to the owner of copyright.
- 2
 - 4
 - 6
 - 3
- 16) Ethical Style is _____.
- Promises only what can be delivered
 - Deals honestly with others
 - Behaves unselfishly
 - Contributes to knowledge base
- 17) _____ is defined as the right of a person to guide.
- Democracy
 - Freedom
 - Responsibility
 - Authority
- 18) Patents are granted by national patent offices or by regional offices that cany out examination work for a group of countries _____.
- True
 - False
- 19) Rules that mandate or prohibit certain behaviour in society _____.
- Regulation
 - Law
 - Rules
 - Moral ethics

- 20)** The hardware or a process used in its manufacture may be protected by
a) _____.
- | | |
|--------------|--------------------|
| a) Copyright | b) Design registry |
| c) Patent | d) Trade mark |

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from Section – I.
2) Solve any two questions from Section – II.
3) Figures to the right indicate full marks.
4) Make suitable assumptions, if required and state them clearly

Section – I

- Q.2** a) Explain role of contractors and consultants in professional practice. **10**
b) State and Explain Professional bodies certifying and offering platform for Civil engineers. **10**
- Q.3** a) Define the terms: - **10**
1) Engineering Ethics
2) Vigil mechanism
3) Protected disclosures
4) Negligence
b) State Code of Ethics as defined in the website of Institution of Engineers. **10**
- Q.4** a) Describe principle of contract management, also discuss Indian Contract Act, 1972. **10**
b) Explain the process of preparing a tender document. **10**

Section – II

- Q.5** a) What is Arbitration tribunal? Discuss the grounds for setting aside an award. **10**
b) Discuss the Dispute Resolution Boards and Lok Adalats. **10**
- Q.6** a) Describe the regulation of employment and conditions of service under Building & other Construction Workers. **10**
b) Discuss methods of engaging labor. **10**
- Q.7** a) Explain process of obtaining patent. **10**
b) Explain Copyright in India including Historical evolution of Copy Rights Act, 1957. **10**

Seat No.	
----------	--

Set

Q

**Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING**

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) Which of the following is not true with respect to ensure a safety design?
 - a) The maximum requirement is that a design must comply with the applicable laws.
 - b) An acceptable design must meet the standard of "accepted engineering practice."
 - c) Alternative designs that are potentially safer must be explored
 - d) Engineer must attempt to foresee potential misuses of the product by the consumer and must design to avoid these problems.

- 2) In _____, a neutral third party assists the disputing parties in reaching a settlement of their dispute.

a) Infiltration	b) Arbitration
c) Mediation	d) Negotiation

- 3) Which of the following stakeholder has the responsibility of prescribing norms to ensure safety of the citizens?

a) Government	b) Professional Societies
c) Standardization Bodies	d) All of these

- 4) What does a trademark protect?
 - a) An invention
 - b) Logos, names and brands
 - c) The look, shape and feel of a product
 - d) A secret formula

- 5) How long do patents usually last for?

a) 10 years	b) 20 years
c) 40 years	d) 60 years

- 6) Safety provisions in Indian Factory Act does not cover _____.

a) Fencing of machinery	b) Precaution against fire
c) Lunch rooms	d) Protection eyes

- 7) Which of the following matter are not referred to arbitration?

a) Civil matters	b) Matrimonial matters
c) Banking matters	d) Property matters

- 8) What is an ethical dilemma?
a) an issue caused by not following guidelines
b) conflict between what's right and what's wrong
c) same as a professional dilemma
d) moral conflict between values
- 9) _____ is the concept that describe the beliefs of an individual or culture.
a) Values
b) Attitude
c) Behaviour
d) Personality
- 10) In the _____ right conduct for an individual is regarded as whatever directly benefits oneself.
a) pre-conventional level
b) post-conventional level
c) conventional level
d) Final level
- 11) An agreement not enforceable by law is said to be _____.
a) A contract
b) Void
c) A voidable contract
d) A void contract
- 12) We use which among the following technique in business organizations and firms for protecting the IT assets?
a) Ethical hacking
b) Unethical hacking
c) Fixing bugs
d) Internal data-breach
- 13) A contract consists of _____.
a) Mutual promises or agreement enforceable by law
b) Agreement not enforceable by law
c) Involuntary obligations
d) None of these
- 14) Which of the following is not true with respect to Titanic disaster?
a) Adequate Life boats
b) Ship sailed at high speed in the night
c) It had hit against an ice berg
d) The ship tore into two parts due to hitting against iceberg
- 15) Copyright law gives _____ exclusive rights to the owner of copyright.
a) 2
b) 4
c) 6
d) 3
- 16) Ethical Style is _____.
a) Promises only what can be delivered
b) Deals honestly with others
c) Behaves unselfishly
d) Contributes to knowledge base
- 17) _____ is defined as the right of a person to guide.
a) Democracy
b) Freedom
c) Responsibility
d) Authority
- 18) Patents are granted by national patent offices or by regional offices that cany out examination work for a group of countries _____.
a) True
b) False
- 19) Rules that mandate or prohibit certain behaviour in society _____.
a) Regulation
b) Law
c) Rules
d) Moral ethics

- 20)** The hardware or a process used in its manufacture may be protected by
a) _____.
- | | |
|--------------|--------------------|
| a) Copyright | b) Design registry |
| c) Patent | d) Trade mark |

Seat No.	
-----------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem – II) (New) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from Section – I.
2) Solve any two questions from Section – II.
3) Figures to the right indicate full marks.
4) Make suitable assumptions, if required and state them clearly

Section – I

- Q.2** a) Explain role of contractors and consultants in professional practice. **10**
b) State and Explain Professional bodies certifying and offering platform for Civil engineers. **10**
- Q.3** a) Define the terms: - **10**
1) Engineering Ethics
2) Vigil mechanism
3) Protected disclosures
4) Negligence
b) State Code of Ethics as defined in the website of Institution of Engineers. **10**
- Q.4** a) Describe principle of contract management, also discuss Indian Contract Act, 1972. **10**
b) Explain the process of preparing a tender document. **10**

Section – II

- Q.5** a) What is Arbitration tribunal? Discuss the grounds for setting aside an award. **10**
b) Discuss the Dispute Resolution Boards and Lok Adalats. **10**
- Q.6** a) Describe the regulation of employment and conditions of service under Building & other Construction Workers. **10**
b) Discuss methods of engaging labor. **10**
- Q.7** a) Explain process of obtaining patent. **10**
b) Explain Copyright in India including Historical evolution of Copy Rights Act, 1957. **10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem – II) (New) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) What does a trademark protect?
 - a) An invention
 - b) Logos, names and brands
 - c) The look, shape and feel of a product
 - d) A secret formula
- 2) How long do patents usually last for?
 - a) 10 years
 - b) 20 years
 - c) 40 years
 - d) 60 years
- 3) Safety provisions in Indian Factory Act does not cover _____.
 - a) Fencing of machinery
 - b) Precaution against fire
 - c) Lunch rooms
 - d) Protection eyes
- 4) Which of the following matter are not referred to arbitration?
 - a) Civil matters
 - b) Matrimonial matters
 - c) Banking matters
 - d) Property matters
- 5) What is an ethical dilemma?
 - a) an issue caused by not following guidelines
 - b) conflict between what's right and what's wrong
 - c) same as a professional dilemma
 - d) moral conflict between values
- 6) _____ is the concept that describe the beliefs of an individual or culture.
 - a) Values
 - b) Attitude
 - c) Behaviour
 - d) Personality
- 7) In the _____ right conduct for an individual is regarded as whatever directly benefits oneself.
 - a) pre-conventional level
 - b) post-conventional level
 - c) conventional level
 - d) Final level
- 8) An agreement not enforceable by law is said to be _____.
 - a) A contract
 - b) Void
 - c) A voidable contract
 - d) A void contract

- 9) We use which among the following technique in business organizations and firms for protecting the IT assets?
- a) Ethical hacking
 - b) Unethical hacking
 - c) Fixing bugs
 - d) Internal data-breach
- 10) A contract consists of _____.
- a) Mutual promises or agreement enforceable by law
 - b) Agreement not enforceable by law
 - c) Involuntary obligations
 - d) None of these
- 11) Which of the following is not true with respect to Titanic disaster?
- a) Adequate Life boats
 - b) Ship sailed at high speed in the night
 - c) It had hit against an ice berg
 - d) The ship tore into two parts due to hitting against iceberg
- 12) Which of the following is not true with respect to ensure a safety design?
- a) The maximum requirement is that a design must comply with the applicable laws.
 - b) An acceptable design must meet the standard of "accepted engineering practice."
 - c) Alternative designs that are potentially safer must be explored
 - d) Engineer must attempt to foresee potential misuses of the product by the consumer and must design to avoid these problems.
- 13) In _____, a neutral third party assists the disputing parties in reaching a settlement of their dispute.
- a) Infiltration
 - b) Arbitration
 - c) Mediation
 - d) Negotiation
- 14) Which of the following stakeholder has the responsibility of prescribing norms to ensure safety of the citizens?
- a) Government
 - b) Professional Societies
 - c) Standardization Bodies
 - d) All of these
- 15) Copyright law gives _____ exclusive rights to the owner of copyright.
- a) 2
 - b) 4
 - c) 6
 - d) 3
- 16) Ethical Style is _____.
- a) Promises only what can be delivered
 - b) Deals honestly with others
 - c) Behaves unselfishly
 - d) Contributes to knowledge base
- 17) _____ is defined as the right of a person to guide.
- a) Democracy
 - b) Freedom
 - c) Responsibility
 - d) Authority
- 18) Patents are granted by national patent offices or by regional offices that carry out examination work for a group of countries _____.
- a) True
 - b) False
- 19) Rules that mandate or prohibit certain behaviour in society _____.
- a) Regulation
 - b) Law
 - c) Rules
 - d) Moral ethics

20) The hardware or a process used in its manufacture may be protected by

a) _____.

a) Copyright

c) Patent

b) Design registry

d) Trade mark

Seat No.	
-----------------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem – II) (New) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from Section – I.
2) Solve any two questions from Section – II.
3) Figures to the right indicate full marks.
4) Make suitable assumptions, if required and state them clearly

Section – I

- Q.2** a) Explain role of contractors and consultants in professional practice. **10**
b) State and Explain Professional bodies certifying and offering platform for Civil engineers. **10**
- Q.3** a) Define the terms: - **10**
1) Engineering Ethics
2) Vigil mechanism
3) Protected disclosures
4) Negligence
b) State Code of Ethics as defined in the website of Institution of Engineers. **10**
- Q.4** a) Describe principle of contract management, also discuss Indian Contract Act, 1972. **10**
b) Explain the process of preparing a tender document. **10**

Section – II

- Q.5** a) What is Arbitration tribunal? Discuss the grounds for setting aside an award. **10**
b) Discuss the Dispute Resolution Boards and Lok Adalats. **10**
- Q.6** a) Describe the regulation of employment and conditions of service under Building & other Construction Workers. **10**
b) Discuss methods of engaging labor. **10**
- Q.7** a) Explain process of obtaining patent. **10**
b) Explain Copyright in India including Historical evolution of Copy Rights Act, 1957. **10**

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem – II) (New) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Professional Practice, Law & Ethics (BTN01801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) A contract consists of _____.
 - a) Mutual promises or agreement enforceable by law
 - b) Agreement not enforceable by law
 - c) Involuntary obligations
 - d) None of these

- 2) Which of the following is not true with respect to Titanic disaster?
 - a) Adequate Life boats
 - b) Ship sailed at high speed in the night
 - c) It had hit against an ice berg
 - d) The ship tore into two parts due to hitting against iceberg

- 3) Which of the following is not true with respect to ensure a safety design?
 - a) The maximum requirement is that a design must comply with the applicable laws.
 - b) An acceptable design must meet the standard of "accepted engineering practice."
 - c) Alternative designs that are potentially safer must be explored
 - d) Engineer must attempt to foresee potential misuses of the product by the consumer and must design to avoid these problems.

- 4) In _____, a neutral third party assists the disputing parties in reaching a settlement of their dispute.

a) Infiltration	b) Arbitration
c) Mediation	d) Negotiation

- 5) Which of the following stakeholder has the responsibility of prescribing norms to ensure safety of the citizens?

a) Government	b) Professional Societies
c) Standardization Bodies	d) All of these

- 6) What does a trademark protect?
 - a) An invention
 - b) Logos, names and brands
 - c) The look, shape and feel of a product
 - d) A secret formula

20) The hardware or a process used in its manufacture may be protected by

a) _____.

a) Copyright
c) Patent

b) Design registry
d) Trade mark

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination:
March/April-2024
CIVIL ENGINEERING
Professional Practice, Law & Ethics (BTN01801)**

Day & Date: Thursday, 09-05-2024

Max. Marks: 80

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Solve any two questions from Section – I.
2) Solve any two questions from Section – II.
3) Figures to the right indicate full marks.
4) Make suitable assumptions, if required and state them clearly

Section – I

- Q.2** a) Explain role of contractors and consultants in professional practice. **10**
b) State and Explain Professional bodies certifying and offering platform for Civil engineers. **10**
- Q.3** a) Define the terms: - **10**
1) Engineering Ethics
2) Vigil mechanism
3) Protected disclosures
4) Negligence
b) State Code of Ethics as defined in the website of Institution of Engineers. **10**
- Q.4** a) Describe principle of contract management, also discuss Indian Contract Act, 1972. **10**
b) Explain the process of preparing a tender document. **10**

Section – II

- Q.5** a) What is Arbitration tribunal? Discuss the grounds for setting aside an award. **10**
b) Discuss the Dispute Resolution Boards and Lok Adalats. **10**
- Q.6** a) Describe the regulation of employment and conditions of service under Building & other Construction Workers. **10**
b) Discuss methods of engaging labor. **10**
- Q.7** a) Explain process of obtaining patent. **10**
b) Explain Copyright in India including Historical evolution of Copy Rights Act, 1957. **10**

Seat No.	
----------	--

Set **P**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ are unpredictable factors of failure of structure.

a) Earthquake	b) Bomb blast
c) both a & b	d) none of the above
- 2) The pH value of fresh concrete is around _____.

a) 10	b) 9
c) 8	d) 12.5
- 3) In restoration of strength by adding external reinforced concrete, the damage in concrete is first repaired by applying _____.

a) Preload	b) Tensile load
c) Compressive load	d) Overload
- 4) Mortar or concrete conveyed through pressure hose and applied pneumatically at high velocity on to a surface is called _____.

a) Guniting	b) grouting
c) sealing	d) spraying
- 5) The main reason for crack generation in concrete is _____.

a) movement of humidity	b) shrinkage
c) difference in temperature	d) all of the above
- 6) Remove a whole building or part of building in control way is known as _____.

a) restoration	b) demolition
c) retrofitting	d) maintenance
- 7) Anti corrosive paint is _____ in colour.

a) Blue	b) White
c) Black	d) Yellow
- 8) Epoxy resins have _____.

a) poor mechanical strength	b) poor thermal strength
c) low tensile strength	d) none of the above

Seat No.	
----------	--

Set **P**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any two** **16**
- Explain the various causes for deterioration of concrete structures.
 - Explain assessment procedure for inspection and evaluating a damaged structure.
 - Describe about fiber reinforced concrete.
- Q.3 Solve any four** **24**
- Explain bacterial concrete/self-healing concrete
 - Explain Shoring and Underpinning.
 - Discuss about maintenance of structure.
 - Describe on Shotcrete and Guniting.
 - Explain vacuum concrete.
 - Explain about cracks found in reinforced concrete structures.

Section – II

- Q.4 Solve any two** **16**
- Explain with sketches retrofitting and jacketing method used in repairs of column and beams.
 - Explain in detail structural health monitoring for buildings.
 - Explain repair techniques used in R.C. slab.
- Q.5 Solve any four** **24**
- Describe repairs of underwater structures.
 - Explain repairs in case of leakages in concrete slab.
 - Explain strengthening of R.C beams.
 - Explain demolition techniques used in buildings.
 - Describe repair techniques used fire damaged buildings.
 - Describe repair techniques used to overcome low member strength, deflection in R.C members.

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any two** **16**
- a) Explain the various causes for deterioration of concrete structures.
 - b) Explain assessment procedure for inspection and evaluating a damaged structure.
 - c) Describe about fiber reinforced concrete.
- Q.3 Solve any four** **24**
- a) Explain bacterial concrete/self-healing concrete
 - b) Explain Shoring and Underpinning.
 - c) Discuss about maintenance of structure.
 - d) Describe on Shotcrete and Guniting.
 - e) Explain vacuum concrete.
 - f) Explain about cracks found in reinforced concrete structures.

Section – II

- Q.4 Solve any two** **16**
- a) Explain with sketches retrofitting and jacketing method used in repairs of column and beams.
 - b) Explain in detail structural health monitoring for buildings.
 - c) Explain repair techniques used in R.C. slab.
- Q.5 Solve any four** **24**
- a) Describe repairs of underwater structures.
 - b) Explain repairs in case of leakages in concrete slab.
 - c) Explain strengthening of R.C beams.
 - d) Explain demolition techniques used in buildings.
 - e) Describe repair techniques used fire damaged buildings.
 - f) Describe repair techniques used to overcome low member strength, deflection in R.C members.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ equipment used for starting the explosion in explosive material.
 - a) Detonators
 - b) Starting cap
 - c) Current switch
 - d) none of the above
- 2) _____ is not used in the underpinning work.
 - a) Heating method
 - b) Frizzing method
 - c) Pit method
 - d) all of the above
- 3) The repair and rehabilitation of damaged or spelled concrete is done by removing the _____.
 - a) Loose concrete
 - b) Collapsing
 - c) Breakage
 - d) Bonding
- 4) Main causes of failure of the structure _____.
 - a) Design error
 - b) Poor inspection
 - c) Poor quality of materials
 - d) all of the above
- 5) _____ bacteria are commonly used in bacterial concrete for crack repair.
 - a) E. coli
 - b) Lactobacillus
 - c) Streptococcus
 - d) Salmonella
- 6) Which non-destructive testing (NDT) method is suitable for detecting voids or delamination's in concrete?
 - a) Ultrasonic testing
 - b) X-ray imaging
 - c) Taste testing
 - d) Guesswork
- 7) _____ sensor is often employed to monitor temperature changes in concrete structures.
 - a) Strain gauges
 - b) Piezoelectric sensors
 - c) Fiberoptic sensors
 - d) Thermocouples
- 8) _____ of the following factors contributes to the corrosion of steel in marine structures.
 - a) Low humidity
 - b) High pH of seawater
 - c) Absence of oxygen
 - d) Presence of chloride ions

- 9) _____ of the following factors may necessitate retrofitting of concrete structures.
- Low humidity
 - Minimal traffic loads
 - Structural deterioration or damage
 - Excessive reinforcement
- 10) _____ is the primary goal of structural rehabilitation.
- To decrease the load-bearing capacity
 - To increase the risk of collapse
 - To enhance the structural integrity and extend service life
 - To ignore existing defects
- 11) _____ are unpredictable factors of failure of structure.
- Earthquake
 - Bomb blast
 - both a & b
 - none of the above
- 12) The pH value of fresh concrete is around _____.
- 10
 - 9
 - 8
 - 12.5
- 13) In restoration of strength by adding external reinforced concrete, the damage in concrete is first repaired by applying _____.
- Preload
 - Tensile load
 - Compressive load
 - Overload
- 14) Mortar or concrete conveyed through pressure hose and applied pneumatically at high velocity on to a surface is called _____.
- Guniting
 - grouting
 - sealing
 - spraying
- 15) The main reason for crack generation in concrete is _____.
- movement of humidity
 - shrinkage
 - difference in temperature
 - all of the above
- 16) Remove a whole building or part of building in control way is known as _____.
- restoration
 - demolition
 - retrofitting
 - maintenance
- 17) Anti corrosive paint is _____ in colour.
- Blue
 - White
 - Black
 - Yellow
- 18) Epoxy resins have _____.
- poor mechanical strength
 - poor thermal strength
 - low tensile strength
 - none of the above
- 19) _____ type of plaster defect generates a series of hair cracks inside the plaster.
- Crazing
 - Blistering
 - Flaking
 - Popping
- 20) _____ metal is used for making a foamed concrete.
- Aluminum
 - Zinc
 - a & b both
 - none of the above

Seat No.	
----------	--

Set **R**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any two** **16**
- a) Explain the various causes for deterioration of concrete structures.
 - b) Explain assessment procedure for inspection and evaluating a damaged structure.
 - c) Describe about fiber reinforced concrete.
- Q.3 Solve any four** **24**
- a) Explain bacterial concrete/self-healing concrete
 - b) Explain Shoring and Underpinning.
 - c) Discuss about maintenance of structure.
 - d) Describe on Shotcrete and Guniting.
 - e) Explain vacuum concrete.
 - f) Explain about cracks found in reinforced concrete structures.

Section – II

- Q.4 Solve any two** **16**
- a) Explain with sketches retrofitting and jacketing method used in repairs of column and beams.
 - b) Explain in detail structural health monitoring for buildings.
 - c) Explain repair techniques used in R.C. slab.
- Q.5 Solve any four** **24**
- a) Describe repairs of underwater structures.
 - b) Explain repairs in case of leakages in concrete slab.
 - c) Explain strengthening of R.C beams.
 - d) Explain demolition techniques used in buildings.
 - e) Describe repair techniques used fire damaged buildings.
 - f) Describe repair techniques used to overcome low member strength, deflection in R.C members.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) Which non-destructive testing (NDT) method is suitable for detecting voids or delamination's in concrete?

a) Ultrasonic testing	b) X-ray imaging
c) Taste testing	d) Guesswork
- 2) _____ sensor is often employed to monitor temperature changes in concrete structures.

a) Strain gauges	b) Piezoelectric sensors
c) Fiberoptic sensors	d) Thermocouples
- 3) _____ of the following factors contributes to the corrosion of steel in marine structures.

a) Low humidity	b) High pH of seawater
c) Absence of oxygen	d) Presence of chloride ions
- 4) _____ of the following factors may necessitate retrofitting of concrete structures.

a) Low humidity	b) Minimal traffic loads
c) Structural deterioration or damage	d) Excessive reinforcement
- 5) _____ is the primary goal of structural rehabilitation.

a) To decrease the load-bearing capacity	b) To increase the risk of collapse
c) To enhance the structural integrity and extend service life	d) To ignore existing defects
- 6) _____ are unpredictable factors of failure of structure.

a) Earthquake	b) Bomb blast
c) both a & b	d) none of the above
- 7) The pH value of fresh concrete is around _____.

a) 10	b) 9
c) 8	d) 12.5

Seat No.	
----------	--

Set **S**

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (BTN01803)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any two** **16**
- a) Explain the various causes for deterioration of concrete structures.
 - b) Explain assessment procedure for inspection and evaluating a damaged structure.
 - c) Describe about fiber reinforced concrete.
- Q.3 Solve any four** **24**
- a) Explain bacterial concrete/self-healing concrete
 - b) Explain Shoring and Underpinning.
 - c) Discuss about maintenance of structure.
 - d) Describe on Shotcrete and Guniting.
 - e) Explain vacuum concrete.
 - f) Explain about cracks found in reinforced concrete structures.

Section – II

- Q.4 Solve any two** **16**
- a) Explain with sketches retrofitting and jacketing method used in repairs of column and beams.
 - b) Explain in detail structural health monitoring for buildings.
 - c) Explain repair techniques used in R.C. slab.
- Q.5 Solve any four** **24**
- a) Describe repairs of underwater structures.
 - b) Explain repairs in case of leakages in concrete slab.
 - c) Explain strengthening of R.C beams.
 - d) Explain demolition techniques used in buildings.
 - e) Describe repair techniques used fire damaged buildings.
 - f) Describe repair techniques used to overcome low member strength, deflection in R.C members.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q. No.1)
 - 6) Use of scientific non programmable calculator is allowed.
 - 7) Draw the appropriate sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

- 1) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110° ? **01**
 - a) 0.6
 - b) 0.65
 - c) 0.55
 - d) 0.75
- 2) For the block shear failure of a tension member, the failure occurs along a path through the connection involving _____. **01**
 - a) Tension on the two perpendicular planes
 - b) Shear on the two perpendicular planes
 - c) Tension on one plane and shear on the other perpendicular plane
 - d) Tension on the plane of connection and compression on the other
- 3) The shape factor in plastic method of analysis depends upon _____. **01**
 - a) Yield stress of the material
 - b) Hinge length
 - c) Geometry of the section
 - d) Redistribution of moments
- 4) Which of the following is a compression member? **01**
 - a) Purlin
 - b) Boom
 - c) Girt
 - d) Tie
- 5) As per IS 800 purlins are designed as a _____. **01**
 - a) Simply supported beams
 - b) Cantilever beams
 - c) Continuous beams
 - d) Compression member
- 6) Sag rod are designed as _____. **01**
 - a) Compression member
 - b) Tension member
 - c) Laterally supported beam
 - d) Laterally unsupported beam

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Attempt any two questions from both sections.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed & mention it clearly.
 4) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ.
 5) Use of scientific non programmable calculator is allowed.
 6) Draw the appropriate sketches wherever necessary.

Section – I

- Q.2** An Industrial building has the following: **20**
 a) Span - 30 m
 b) Length - 70 m
 c) Wind speed - 6 m/s
 d) Clear height - 10 m
 e) Class B Building
 f) Galvanized Steel Sheet
 Design roof truss, purlin and girder for the industrial building.
 Assume any missing data as Indian Standards.
- Q.3** With the help of a diagram, explain structural framing of a braced industrial building. Show cross section at end bay and bottom chord bracing. **20**
- Q.4** An elevated cylindrical tank is to be designed for a capacity of 300 KL, the tank has conical roof and suspended hemispherical bottom. Design the tank for the thickness of the plates at cylindrical and hemispherical sections. Also design the connections. Take $F_y = 250$ and assume any missing data as per standards. **20**

Section – II

- Q.5** A self-supporting steel chimney is 80 m high and its diameter at the top is 4 metres, design breech (flue) opening. Adopt the wind force as per IS : 875. The location of the place is such that the intensity of wind pressure at 30 m height is 120 kN/m^2 . Assume any missing data as per Indian Standards. **20**
- Q.6** a) Sketch the elevation of different transmission line towers. **10**
 b) Explain the procedure for designing transmission line towers. **10**
- Q.7** a) Explain the different types of machine foundation. **08**
 b) Explain the design procedure of turbo generator foundation. **12**

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book).
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.
 - 5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q. No.1)
 - 6) Use of scientific non programmable calculator is allowed.
 - 7) Draw the appropriate sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

- 1) As per IS 800 purlins are designed as a _____. **01**
 - a) Simply supported beams
 - b) Cantilever beams
 - c) Continuous beams
 - d) Compression member
- 2) Sag rod are designed as _____. **01**
 - a) Compression member
 - b) Tension member
 - c) Laterally supported beam
 - d) Laterally unsupported beam
- 3) The self- weight of a roof truss (N/m^2) may be obtained by _____. **01**
 - a) $(L + 5)5$
 - b) $(L/3 + 5)10$
 - c) $(L - 5)5$
 - d) $(L/3 - 5)10$
- 4) Steel is an alloy which mainly contains _____. **01**
 - a) iron and silica
 - b) iron and sulfur
 - c) iron and carbon
 - d) iron and sodium
- 5) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110° ? **01**
 - a) 0.6
 - b) 0.65
 - c) 0.55
 - d) 0.75
- 6) For the block shear failure of a tension member, the failure occurs along a path through the connection involving _____. **01**
 - a) Tension on the two perpendicular planes
 - b) Shear on the two perpendicular planes
 - c) Tension on one plane and shear on the other perpendicular plane
 - d) Tension on the plane of connection and compression on the other

- 7) The shape factor in plastic method of analysis depends upon _____. **01**
a) Yield stress of the material b) Hinge length
c) Geometry of the section d) Redistribution of moments
- 8) Which of the following is a compression member? **01**
a) Purlin b) Boom
c) Girt d) Tie
- 9) The shape factor for triangular section is _____. **02**
a) 1.50 b) 1.14
c) 2.34 d) 1.78
- 10) A beam section is classified as low shear case when the factored shear force is less than _____. **02**
a) $0.4V_d$ b) $0.6V_d$
c) $0.8V_d$ d) V_d
- 11) For economical span of roof truss, if t , p , r are the cost of truss, purlin and roof coverings respective, then _____. **02**
a) $t = p + r$ b) $t = 2p + r$
c) $t = p + 3r$ d) $t + p + 2r$
- 12) Which of the following is the mode of failure in fillet weld material? **02**
a) Tension b) Shear
c) Bearing d) Crushing
- 13) The slenderness ratio of lacing flat is limited to _____. **02**
a) 350 b) 145
c) 180 d) 250
- 14) The thickness of base plate is determined from the _____. **02**
a) Flexural strength of plate
b) Shear strength of plate
c) Bearing strength of concrete pedestal
d) Punching criteria

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Attempt any two questions from both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed & mention it clearly.
4) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ.
5) Use of scientific non programmable calculator is allowed.
6) Draw the appropriate sketches wherever necessary.

Section – I

- Q.2** An Industrial building has the following: **20**
 a) Span - 30 m
 b) Length - 70 m
 c) Wind speed - 6 m/s
 d) Clear height - 10 m
 e) Class B Building
 f) Galvanized Steel Sheet
 Design roof truss, purlin and girder for the industrial building.
 Assume any missing data as Indian Standards.
- Q.3** With the help of a diagram, explain structural framing of a braced industrial building. Show cross section at end bay and bottom chord bracing. **20**
- Q.4** An elevated cylindrical tank is to be designed for a capacity of 300 KL, the tank has conical roof and suspended hemispherical bottom. Design the tank for the thickness of the plates at cylindrical and hemispherical sections. Also design the connections. Take $F_y = 250$ and assume any missing data as per standards. **20**

Section – II

- Q.5** A self-supporting steel chimney is 80 m high and its diameter at the top is 4 metres, design breech (flue) opening. Adopt the wind force as per IS : 875. The location of the place is such that the intensity of wind pressure at 30 m height is 120 kN/m^2 . Assume any missing data as per Indian Standards. **20**
- Q.6** a) Sketch the elevation of different transmission line towers. **10**
 b) Explain the procedure for designing transmission line towers. **10**
- Q.7** a) Explain the different types of machine foundation. **08**
 b) Explain the design procedure of turbo generator foundation. **12**

- 8) Sag rod are designed as _____. 01
a) Compression member
b) Tension member
c) Laterally supported beam
d) Laterally unsupported beam
- 9) The thickness of base plate is determined from the _____. 02
a) Flexural strength of plate
b) Shear strength of plate
c) Bearing strength of concrete pedestal
d) Punching criteria
- 10) The shape factor for triangular section is _____. 02
a) 1.50 b) 1.14
c) 2.34 d) 1.78
- 11) A beam section is classified as low shear case when the factored shear force is less than _____. 02
a) $0.4V_d$ b) $0.6V_d$
c) $0.8V_d$ d) V_d
- 12) For economical span of roof truss, if t, p, r are the cost of truss, purlin and roof coverings respective, then _____. 02
a) $t = p + r$ b) $t = 2p + r$
c) $t = p + 3r$ d) $t + p + 2r$
- 13) Which of the following is the mode of failure in fillet weld material? 02
a) Tension b) Shear
c) Bearing d) Crushing
- 14) The slenderness ratio of lacing flat is limited to _____. 02
a) 350 b) 145
c) 180 d) 250

Seat No.	
----------	--

Set	R
-----	---

Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Attempt any two questions from both sections.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed & mention it clearly.
 4) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ.
 5) Use of scientific non programmable calculator is allowed.
 6) Draw the appropriate sketches wherever necessary.

Section – I

- Q.2** An Industrial building has the following: **20**
 a) Span - 30 m
 b) Length - 70 m
 c) Wind speed - 6 m/s
 d) Clear height - 10 m
 e) Class B Building
 f) Galvanized Steel Sheet
 Design roof truss, purlin and girder for the industrial building.
 Assume any missing data as Indian Standards.
- Q.3** With the help of a diagram, explain structural framing of a braced industrial building. Show cross section at end bay and bottom chord bracing. **20**
- Q.4** An elevated cylindrical tank is to be designed for a capacity of 300 KL, the tank has conical roof and suspended hemispherical bottom. Design the tank for the thickness of the plates at cylindrical and hemispherical sections. Also design the connections. Take $F_y = 250$ and assume any missing data as per standards. **20**

Section – II

- Q.5** A self-supporting steel chimney is 80 m high and its diameter at the top is 4 metres, design breech (flue) opening. Adopt the wind force as per IS : 875. The location of the place is such that the intensity of wind pressure at 30 m height is 120 kN/m^2 . Assume any missing data as per Indian Standards. **20**
- Q.6** a) Sketch the elevation of different transmission line towers. **10**
 b) Explain the procedure for designing transmission line towers. **10**
- Q.7** a) Explain the different types of machine foundation. **08**
 b) Explain the design procedure of turbo generator foundation. **12**

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book).
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ (Q. No.1)
 6) Use of scientific non programmable calculator is allowed.
 7) Draw the appropriate sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

- 1) The shape factor in plastic method of analysis depends upon _____. **01**
 - a) Yield stress of the material
 - b) Hinge length
 - c) Geometry of the section
 - d) Redistribution of moments
- 2) Which of the following is a compression member? **01**
 - a) Purlin
 - b) Boom
 - c) Girt
 - d) Tie
- 3) As per IS 800 purlins are designed as a _____. **01**
 - a) Simply supported beams
 - b) Cantilever beams
 - c) Continuous beams
 - d) Compression member
- 4) Sag rod are designed as _____. **01**
 - a) Compression member
 - b) Tension member
 - c) Laterally supported beam
 - d) Laterally unsupported beam
- 5) The self- weight of a roof truss (N/m^2) may be obtained by _____. **01**
 - a) $(L + 5)5$
 - b) $(L/3 + 5)10$
 - c) $(L - 5)5$
 - d) $(L/3 - 5)10$
- 6) Steel is an alloy which mainly contains _____. **01**
 - a) iron and silica
 - b) iron and sulfur
 - c) iron and carbon
 - d) iron and sodium
- 7) What is the value of constant 'k' to calculate throat thickness in fillet weld if the angle between fusion faces is 110° ? **01**
 - a) 0.6
 - b) 0.65
 - c) 0.55
 - d) 0.75

Seat No.	
----------	--

Set	S
-----	---

Fourth Y. (B. Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Industrial Structures (BTN01804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:**
- 1) Attempt any two questions from both sections.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data wherever needed & mention it clearly.
 - 4) Use of IS 800-2007 and IS 875 are allowed, but not allowed for MCQ.
 - 5) Use of scientific non programmable calculator is allowed.
 - 6) Draw the appropriate sketches wherever necessary.

Section – I

- Q.2** An Industrial building has the following: **20**
- a) Span - 30 m
 - b) Length - 70 m
 - c) Wind speed - 6 m/s
 - d) Clear height - 10 m
 - e) Class B Building
 - f) Galvanized Steel Sheet
- Design roof truss, purlin and girder for the industrial building.
 Assume any missing data as Indian Standards.
- Q.3** With the help of a diagram, explain structural framing of a braced industrial building. Show cross section at end bay and bottom chord bracing. **20**
- Q.4** An elevated cylindrical tank is to be designed for a capacity of 300 KL, the tank has conical roof and suspended hemispherical bottom. Design the tank for the thickness of the plates at cylindrical and hemispherical sections. Also design the connections. Take $F_y = 250$ and assume any missing data as per standards. **20**

Section – II

- Q.5** A self-supporting steel chimney is 80 m high and its diameter at the top is 4 metres, design breech (flue) opening. Adopt the wind force as per IS : 875. The location of the place is such that the intensity of wind pressure at 30 m height is 120 kN/m². Assume any missing data as per Indian Standards. **20**
- Q.6**
- a) Sketch the elevation of different transmission line towers. **10**
 - b) Explain the procedure for designing transmission line towers. **10**
- Q.7**
- a) Explain the different types of machine foundation. **08**
 - b) Explain the design procedure of turbo generator foundation. **12**

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the given options. 20

- 1) The objective(s) of grouting is/are:
 - a) Densification to prevent or arrest settlement and mitigate liquefaction
 - b) Soil solidification to increase cohesion of granular soil
 - c) Reduction of permeability and water control
 - d) All of the above
- 2) Grouting pressure is generally limited (in kPa) up to _____.
 - a) 1.0
 - b) 5.0
 - c) 20
 - d) 50
- 3) The correct assumption for theory of grouting is _____.
 - a) The ground is anisotropic
 - b) The grout is Newtonian fluid
 - c) Grout is injected from the top of pipe
 - d) All of the above
- 4) The aim of soil stabilization is to increase the _____.
 - a) Seepage
 - b) Bearing capacity
 - c) Shear strength
 - d) Both b) and c)
- 5) Cement stabilization is generally used for stabilizing _____.
 - a) Sand
 - b) Gravel
 - c) Clay
 - d) All of these
- 6) The strength of soil lime stabilization depends on _____ content of the soil type.
 - a) Water
 - b) Pozzolana
 - c) Clay
 - d) Organic
- 7) Increase in lime content results in _____.
 - a) Increase in liquid limit
 - b) Decrease in plasticity index
 - c) No change in plasticity index
 - d) None of the above

- 8) The favorable geomaterials for soil nailing installation is/are _____.
a) stiff to hard fine grained soil
b) very soft fine-grained soils
c) poorly graded cohesionless soils
d) All of the above
- 9) Which of the following is/are function(s) of geosynthetics?
a) Reinforcement
b) Filtration
c) Erosion Control
d) All of these
- 10) Advantage(s) of mechanically stabilized earth wall is/are _____.
a) Relatively easy to build
b) Require high-quality backfill materials
c) Poor drainage
d) All of these
- 11) Limitation(s) of mechanically stabilized earth wall is/are _____.
a) Relatively easy to build
b) Require high-quality backfill materials
c) Cost effective
d) All of these
- 12) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
a) Earth pressure at rest
b) Passive earth pressure theory
c) Active earth pressure theory
d) None of the above
- 13) For vibro-compaction, performance criteria for geometrical, $D_r \geq 60\%$ should be considered at:
a) Floor slabs
b) Column footing
c) Mat foundation
d) budge foundation
- 14) Ground heave occur in soil because of _____.
a) Water
b) Expansive soil
c) Froze soil
d) all of the above
- 15) The removal of excess water from saturated soil mass called _____.
a) Compaction
b) Saturation
c) Drainage and Dewatering
d) All of the above
- 16) The performance of compaction equipment depends upon _____.
a) Soil type
b) Water type
c) Particle size Distribution
d) All of the above
- 17) Deep dynamic compaction is generally not recommended for _____.
a) Loose and partially saturated fills
b) Silts with plasticity index less than 8
c) Clayey soil with high degree of saturation
d) None of the above
- 18) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
a) Earth pressure at rest
b) Passive earth pressure theory
c) Active earth pressure theory
d) None of the above

- 19)** Stone columns are widely used to _____.
a) Increase bearing capacity and stability
b) Reduce settlement and liquefaction potential.
c) Accelerate consolidation
d) All of the above
- 20)** Design parameter for Rapid Impact compaction are:
a) Depth of improvement
b) Geomaterial type
c) Distance to the existing structures
d) All of the above

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from section - I.
2) Solve any two questions from section - II.
3) Figures to the right indicate full marks.
4) Assume suitable assumption, if required and state them clearly.

Section – I

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Discuss the necessity of ground improvement technique and explain the role of ground improvement in foundation engineering. | 10 |
| | b) Write a note on ground modification option in dealing with difficult soil. | 10 |
| Q.3 | a) Write a detailed note on various equipment for compaction and their suitability for different soils. | 10 |
| | b) Explain vibro flotation and its importance in improving soil properties. | 10 |
| Q.4 | a) Explain purpose of dewatering during construction stage and post construction stage. | 10 |
| | b) What are the advantages and limitations of vacuum dewatering system. | 10 |

Section – II

- | | | |
|------------|----------------------------------------------------------------------------------------|-----------|
| Q.5 | a) Write a detailed note on heat treatment of soils. | 10 |
| | b) Explain the concept of soil nailing. | 10 |
| Q.6 | a) Explain types of admixtures used for lime stabilization. | 10 |
| | b) Explain cement stabilization in improving soil properties. | 10 |
| Q.7 | a) Explain open web girders and composite girders with neat sketches. | 10 |
| | b) What are the advantages and limitations of reinforced earth retaining walls. | 10 |

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the given options. 20

- 1) The strength of soil lime stabilization depends on _____ content of the soil type.

a) Water	b) Pozzolana
c) Clay	d) Organic
- 2) Increase in lime content results in _____.

a) Increase in liquid limit	b) Decrease in plasticity index
c) No change in plasticity index	d) None of the above
- 3) The favorable geomaterials for soil nailing installation is/are _____.
 - a) stiff to hard fine grained soil
 - b) very soft fine-grained soils
 - c) poorly graded cohesionless soils
 - d) All of the above
- 4) Which of the following is/are function(s) of geosynthetics?

a) Reinforcement	b) Filtration
c) Erosion Control	d) All of these
- 5) Advantage(s) of mechanically stabilized earth wall is/are _____.
 - a) Relatively easy to build
 - b) Require high-quality backfill materials
 - c) Poor drainage
 - d) All of these
- 6) Limitation(s) of mechanically stabilized earth all is/are _____.
 - a) Relatively easy to build
 - b) Require high-quality backfill materials
 - c) Cost effective
 - d) All of these

- 7) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
a) Earth pressure at rest
b) Passive earth pressure theory
c) Active earth pressure theory
d) None of the above
- 8) For vibro-compaction, performance criteria for geometrical, $D_r \geq 60\%$ should be considered at:
a) Floor slabs
b) Column footing
c) Mat foundation
d) budge foundation
- 9) Ground heave occur in soil because of _____.
a) Water
b) Expansive soil
c) Froze soil
d) all of the above
- 10) The removal of excess water from saturated soil mass called _____.
a) Compaction
b) Saturation
c) Drainage and Dewatering
d) All of the above
- 11) The performance of compaction equipment depends upon _____.
a) Soil type
b) Water type
c) Particle size Distribution
d) All of the above
- 12) Deep dynamic compaction is generally not recommended for _____.
a) Loose and partially saturated fills
b) Silts with plasticity index less than 8
c) Clayey soil with high degree of saturation
d) None of the above
- 13) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
a) Earth pressure at rest
b) Passive earth pressure theory
c) Active earth pressure theory
d) None of the above
- 14) Stone columns are widely used to _____.
a) Increase bearing capacity and stability
b) Reduce settlement and liquefaction potential.
c) Accelerate consolidation
d) All of the above
- 15) Design parameter for Rapid Impact compaction are:
a) Depth of improvement
b) Geomaterial type
c) Distance to the existing structures
d) All of the above
- 16) The objective(s) of grouting is/are:
a) Densification to prevent or arrest settlement and mitigate liquefaction
b) Soil solidification to increase cohesion of granular soil
c) Reduction of permeability and water control
d) All of the above
- 17) Grouting pressure is generally limited (in kPa) up to _____.
a) 1.0
b) 5.0
c) 20
d) 50

- 18)** The correct assumption for theory of grouting is _____.
a) The ground is anisotropic
b) The grout is Newtonian fluid
c) Grout is injected from the top of pipe
d) All of the above
- 19)** The aim of soil stabilization is to increase the _____.
a) Seepage
b) Bearing capacity
c) Shear strength
d) Both b) and c)
- 20)** Cement stabilization is generally used for stabilizing _____.
a) Sand
b) Gravel
c) Clay
d) All of these

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from section - I.
2) Solve any two questions from section - II.
3) Figures to the right indicate full marks.
4) Assume suitable assumption, if required and state them clearly.

Section – I

- Q.2** a) Discuss the necessity of ground improvement technique and explain the role of ground improvement in foundation engineering. **10**
b) Write a note on ground modification option in dealing with difficult soil. **10**
- Q.3** a) Write a detailed note on various equipment for compaction and their suitability for different soils. **10**
b) Explain vibro flotation and its importance in improving soil properties. **10**
- Q.4** a) Explain purpose of dewatering during construction stage and post construction stage. **10**
b) What are the advantages and limitations of vacuum dewatering system. **10**

Section – II

- Q.5** a) Write a detailed note on heat treatment of soils. **10**
b) Explain the concept of soil nailing. **10**
- Q.6** a) Explain types of admixtures used for lime stabilization. **10**
b) Explain cement stabilization in improving soil properties. **10**
- Q.7** a) Explain open web girders and composite girders with neat sketches. **10**
b) What are the advantages and limitations of reinforced earth retaining walls. **10**

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the given options. 20

- 1) Limitation(s) of mechanically stabilized earth all is/are _____.
 - a) Relatively easy to build
 - b) Require high-quality backfill materials
 - c) Cost effective
 - d) All of these
- 2) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
 - a) Earth pressure at rest
 - b) Passive earth pressure theory
 - c) Active earth pressure theory
 - d) None of the above
- 3) For vibro-compaction, performance criteria for geometrical, $Dr \geq 60\%$ should be considered at:

a) Floor slabs	b) Column footing
c) Mat foundation	d) budge foundation
- 4) Ground heave occur in soil because of _____.

a) Water	b) Expansive soil
c) Froze soil	d) all of the above
- 5) The removal of excess water from saturated soil mass called _____.

a) Compaction	b) Saturation
c) Drainage and Dewatering	d) All of the above
- 6) The performance of compaction equipment depends upon _____.

a) Soil type	b) Water type
c) Particle size Distribution	d) All of the above
- 7) Deep dynamic compaction is generally not recommended for _____.
 - a) Loose and partially saturated fills
 - b) Silts with plasticity index less than 8
 - c) Clayey soil with high degree of saturation
 - d) None of the above

- 8) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
a) Earth pressure at rest
b) Passive earth pressure theory
c) Active earth pressure theory
d) None of the above
- 9) Stone columns are widely used to _____.
a) Increase bearing capacity and stability
b) Reduce settlement and liquefaction potential.
c) Accelerate consolidation
d) All of the above
- 10) Design parameter for Rapid Impact compaction are:
a) Depth of improvement
b) Geomaterial type
c) Distance to the existing structures
d) All of the above
- 11) The objective(s) of grouting is/are:
a) Densification to prevent or arrest settlement and mitigate liquefaction
b) Soil solidification to increase cohesion of granular soil
c) Reduction of permeability and water control
d) All of the above
- 12) Grouting pressure is generally limited (in kPa) up to _____.
a) 1.0
b) 5.0
c) 20
d) 50
- 13) The correct assumption for theory of grouting is _____.
a) The ground is anisotropic
b) The grout is Newtonian fluid
c) Grout is injected from the top of pipe
d) All of the above
- 14) The aim of soil stabilization is to increase the _____.
a) Seepage
b) Bearing capacity
c) Shear strength
d) Both b) and c)
- 15) Cement stabilization is generally used for stabilizing _____.
a) Sand
b) Gravel
c) Clay
d) All of these
- 16) The strength of soil lime stabilization depends on _____ content of the soil type.
a) Water
b) Pozzolana
c) Clay
d) Organic
- 17) Increase in lime content results in _____.
a) Increase in liquid limit
b) Decrease in plasticity index
c) No change in plasticity index
d) None of the above
- 18) The favorable geomaterials for soil nailing installation is/are _____.
a) stiff to hard fine grained soil
b) very soft fine-grained soils
c) poorly graded cohesionless soils
d) All of the above

- 19)** Which of the following is/are function(s) of geosynthetics?
- a) Reinforcement
 - b) Filtration
 - c) Erosion Control
 - d) All of these
- 20)** Advantage(s) of mechanically stabilized earth wall is/are _____.
- a) Relatively easy to build
 - b) Require high-quality backfill materials
 - c) Poor drainage
 - d) All of these

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from section - I.
2) Solve any two questions from section - II.
3) Figures to the right indicate full marks.
4) Assume suitable assumption, if required and state them clearly.

Section – I

- Q.2** a) Discuss the necessity of ground improvement technique and explain the role of ground improvement in foundation engineering. **10**
b) Write a note on ground modification option in dealing with difficult soil. **10**
- Q.3** a) Write a detailed note on various equipment for compaction and their suitability for different soils. **10**
b) Explain vibro flotation and its importance in improving soil properties. **10**
- Q.4** a) Explain purpose of dewatering during construction stage and post construction stage. **10**
b) What are the advantages and limitations of vacuum dewatering system. **10**

Section – II

- Q.5** a) Write a detailed note on heat treatment of soils. **10**
b) Explain the concept of soil nailing. **10**
- Q.6** a) Explain types of admixtures used for lime stabilization. **10**
b) Explain cement stabilization in improving soil properties. **10**
- Q.7** a) Explain open web girders and composite girders with neat sketches. **10**
b) What are the advantages and limitations of reinforced earth retaining walls. **10**

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the given options. 20

- 1) The performance of compaction equipment depends upon _____.
 - a) Soil type
 - b) Water type
 - c) Particle size Distribution
 - d) All of the above
- 2) Deep dynamic compaction is generally not recommended for _____.
 - a) Loose and partially saturated fills
 - b) Silts with plasticity index less than 8
 - c) Clayey soil with high degree of saturation
 - d) None of the above
- 3) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
 - a) Earth pressure at rest
 - b) Passive earth pressure theory
 - c) Active earth pressure theory
 - d) None of the above
- 4) Stone columns are widely used to _____.
 - a) Increase bearing capacity and stability
 - b) Reduce settlement and liquefaction potential.
 - c) Accelerate consolidation
 - d) All of the above
- 5) Design parameter for Rapid Impact compaction are:
 - a) Depth of improvement
 - b) Geomaterial type
 - c) Distance to the existing structures
 - d) All of the above
- 6) The objective(s) of grouting is/are:
 - a) Densification to prevent or arrest settlement and mitigate liquefaction
 - b) Soil solidification to increase cohesion of granular soil
 - c) Reduction of permeability and water control
 - d) All of the above
- 7) Grouting pressure is generally limited (in kPa) up to _____.
 - a) 1.0
 - b) 5.0
 - c) 20
 - d) 50

- 8) The correct assumption for theory of grouting is _____.
a) The ground is anisotropic
b) The grout is Newtonian fluid
c) Grout is injected from the top of pipe
d) All of the above
- 9) The aim of soil stabilization is to increase the _____.
a) Seepage
b) Bearing capacity
c) Shear strength
d) Both b) and c)
- 10) Cement stabilization is generally used for stabilizing _____.
a) Sand
b) Gravel
c) Clay
d) All of these
- 11) The strength of soil lime stabilization depends on _____ content of the soil type.
a) Water
b) Pozzolana
c) Clay
d) Organic
- 12) Increase in lime content results in _____.
a) Increase in liquid limit
b) Decrease in plasticity index
c) No change in plasticity index
d) None of the above
- 13) The favorable geomaterials for soil nailing installation is/are _____.
a) stiff to hard fine grained soil
b) very soft fine-grained soils
c) poorly graded cohesionless soils
d) All of the above
- 14) Which of the following is/are function(s) of geosynthetics?
a) Reinforcement
b) Filtration
c) Erosion Control
d) All of these
- 15) Advantage(s) of mechanically stabilized earth wall is/are _____.
a) Relatively easy to build
b) Require high-quality backfill materials
c) Poor drainage
d) All of these
- 16) Limitation(s) of mechanically stabilized earth wall is/are _____.
a) Relatively easy to build
b) Require high-quality backfill materials
c) Cost effective
d) All of these
- 17) The analysis of a Geosynthetic-reinforced earth wall is mainly based on _____.
a) Earth pressure at rest
b) Passive earth pressure theory
c) Active earth pressure theory
d) None of the above
- 18) For vibro-compaction, performance criteria for geometrical, $Dr \geq 60\%$ should be considered at:
a) Floor slabs
b) Column footing
c) Mat foundation
d) budge foundation

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground improvement Techniques (BTN01806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Solve any two questions from section - I.
2) Solve any two questions from section - II.
3) Figures to the right indicate full marks.
4) Assume suitable assumption, if required and state them clearly.

Section – I

- Q.2** a) Discuss the necessity of ground improvement technique and explain the role of ground improvement in foundation engineering. **10**
b) Write a note on ground modification option in dealing with difficult soil. **10**
- Q.3** a) Write a detailed note on various equipment for compaction and their suitability for different soils. **10**
b) Explain vibro flotation and its importance in improving soil properties. **10**
- Q.4** a) Explain purpose of dewatering during construction stage and post construction stage. **10**
b) What are the advantages and limitations of vacuum dewatering system. **10**

Section – II

- Q.5** a) Write a detailed note on heat treatment of soils. **10**
b) Explain the concept of soil nailing. **10**
- Q.6** a) Explain types of admixtures used for lime stabilization. **10**
b) Explain cement stabilization in improving soil properties. **10**
- Q.7** a) Explain open web girders and composite girders with neat sketches. **10**
b) What are the advantages and limitations of reinforced earth retaining walls. **10**

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no. 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) Which of the following tool is used when there is uncertainty in activity duration?

a) PERT	b) milestone chart
c) CPM	d) bar chart

- 2) Please read the following statements:
 - i) Critical path has no float and it determines the project completion period.
 - ii) Critical path is the comparatively longest path
 Which of the above statements is/are wrong?

a) Neither i not ii	b) i
c) ii	d) both i & ii

- 3) PERT is a Project Management tool for managing _____.

a) Time	b) Cost
c) Quality	d) Resources

- 4) Which of the following is not a characteristic of a project?

a) Unique	b) Heterogeneous
c) Infinite duration	d) Non-repetitive

- 5) The early finish time of an activity is always _____.
 - a) Greater than earliest start time of succeeding activity
 - b) less than earliest start time of succeeding activity
 - c) Less than or equal to earliest start time of the succeeding activity
 - d) greater than or equal to earliest start time of the succeeding activity

- 6) _____ is the maximum delay possible for an activity if succeeding activity starts as early as possible and preceding activity ends as late as possible.

a) interfering float	b) total float
c) independent float	d) free float

- 7) In PERT calculation, if factor Z comes negative then Probability of completion of project in scheduled time is always _____.

a) 100%	b) 50%
c) less than 50%	d) greater than 50%

- 8) Hungarian method is suitable for _____.
 a) Graphical Problem b) Transportation Model
 c) Simplex Problem d) Assignment Model
- 9) Odd man out.
 a) Cost of Fuel b) Depreciation Cost
 c) Repair & Maintenance Cost d) Operator salary
- 10) _____ means one employee getting orders and instructions from one supervisor.
 a) Order b) Remuneration
 c) Discipline d) Unity of command
- 11) _____ problem is a special problem of LPP.
 a) Queuing b) Transportation
 c) Simulation d) Decision Tree
- 12) Choose the correct condition for crashing
 (If CC= crash cost, NC= normal cost, CD= crash duration, ND= normal duration)
 a) $CC < NC, CD < ND$ b) $CC < NC, CD > ND$
 c) $CC > NC, CD > ND$ d) $CC > NC, CD < ND$
- 13) An _____ is a set of processes and procedures that transform data into information and knowledge.
 a) Information system b) Knowledge system
 c) Database system d) Computer system
- 14) _____ is a standard that companies compare themselves to and strive to be that good.
 a) Production b) Benchmarking
 c) Structuring d) Formatting
- 15) Basically, _____ is raw material that is to be processed, while _____ is the processed data.
 a) information, data b) data, information
 c) format, detailing d) goods, services
- 16) Moderate inventory control is sufficient for _____.
 a) A class items b) B class items
 c) C Class items d) All of these
- 17) _____ models to analysis a problem and provides possible solution for management evaluation.
 a) Decision b) Standard
 c) Structural d) Periodic
- 18) The person who ensures that systems are developed on time, within budget, and with acceptable quality is a _____.
 a) systems designer b) project manager
 c) systems owner d) systems builder
- 19) Total quality costs include: _____.
 a) Prevention costs b) Appraisal costs
 c) Failure costs d) All of the given options
- 20) Dual of the Dual is _____.
 a) Primal b) Dual
 c) Zero d) Infinity

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024

Max. Marks: 80

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR from the following.

40

- a) 1) Draw the Bar Chart for the project with following data and find the project duration.

Activity	A	B	C	D	E	F	G	H	I	J	K
Preceding Activities	-	-	A	B	C	D	E & F	G	H	H	I & J
Duration (Days)	6	2	3	2	4	1	1	6	3	1	1

- 2) Distinguish Bar chart and Mile stone chart.
- b) What are different costs incurred in Project? What are the basic phases of a project and their purposes ?
- c) Explain about Strategic Cost Management Process.
- d) What are the of databases? explain about Distributed Database and Operational Database with figure.
- e) What is Cost Management in Project management? Also explain Cost concepts in decision making.
- f) List Reasons for Project Failure and how to avert disaster, and state cost control techniques.
- g) Elaborate the following, and duties of the same,
1) Project Manager.
2) Project Team Member.
3) Project Sponsor.

Section – II

Q.3 Attempt any FOUR from the following.

40

- a) What is 'Break Even Analysis'? Explain with analytical and graphical approach. Also attach Cost-Volume-Profit analysis approach.
- b) Draw network, find out CP & PD. Calculate All floats of each non-critical Activity.

Activity	A	B	C	D	E	F	G	H	I	J
Immediate Predecessor	-	-	A	A	B, C	B, C	E	E	D, G	F, H, I
Time in Weeks	15	15	3	5	8	12	1	14	3	14

- c) Find the probability of completing the project 3 weeks earlier than expected project duration.

Activity	Estimated Time		
	to	tm	tp
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

Probability Factor	Probability
0	50%
1	84.13%
2	97.72%
3	99.87%

- d) Explain “Assignment Model’ & ‘Transportation Model’ as a special case of LPP with its assumption, Applications in Operation Research.
- e) What are the direct expenses and selling over heads in project costing? Elaborate each.
- f) Explain ERP with its characteristics, Application, and benefits in business execution.
- g) How SIMULATION is versatile tool in Quantitative techniques? Explain its Advantages, Limitations and use in different sector.

Seat No.	
----------	--

Set **Q**

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no. 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) _____ is the maximum delay possible for an activity if succeeding activity starts as early as possible and preceding activity ends as late as possible.
 - a) interfering float
 - b) total float
 - c) independent float
 - d) free float
- 2) In PERT calculation, if factor Z comes negative then Probability of completion of project in scheduled time is always _____.
 - a) 100%
 - b) 50%
 - c) less than 50%
 - d) greater than 50%
- 3) Hungarian method is suitable for _____.
 - a) Graphical Problem
 - b) Transportation Model
 - c) Simplex Problem
 - d) Assignment Model
- 4) Odd man out.
 - a) Cost of Fuel
 - b) Depreciation Cost
 - c) Repair & Maintenance Cost
 - d) Operator salary
- 5) _____ means one employee getting orders and instructions from one supervisor.
 - a) Order
 - b) Remuneration
 - c) Discipline
 - d) Unity of command
- 6) _____ problem is a special problem of LPP.
 - a) Queuing
 - b) Transportation
 - c) Simulation
 - d) Decision Tree
- 7) Choose the correct condition for crashing
(If CC= crash cost, NC= normal cost, CD= crash duration, ND= normal duration)
 - a) $CC < NC, CD < ND$
 - b) $CC < NC, CD > ND$
 - c) $CC > NC, CD > ND$
 - d) $CC > NC, CD < ND$
- 8) An _____ is a set of processes and procedures that transform data into information and knowledge.
 - a) Information system
 - b) Knowledge system
 - c) Database system
 - d) Computer system

Seat No.	
----------	--

Set **Q**

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024

Max. Marks: 80

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR from the following.

40

- a) 1) Draw the Bar Chart for the project with following data and find the project duration.

Activity	A	B	C	D	E	F	G	H	I	J	K
Preceding Activities	-	-	A	B	C	D	E & F	G	H	H	I & J
Duration (Days)	6	2	3	2	4	1	1	6	3	1	1

- 2) Distinguish Bar chart and Mile stone chart.
- b) What are different costs incurred in Project? What are the basic phases of a project and their purposes ?
- c) Explain about Strategic Cost Management Process.
- d) What are the of databases? explain about Distributed Database and Operational Database with figure.
- e) What is Cost Management in Project management? Also explain Cost concepts in decision making.
- f) List Reasons for Project Failure and how to avert disaster, and state cost control techniques.
- g) Elaborate the following, and duties of the same,
1) Project Manager.
2) Project Team Member.
3) Project Sponsor.

Section – II

Q.3 Attempt any FOUR from the following.

40

- a) What is 'Break Even Analysis'? Explain with analytical and graphical approach. Also attach Cost-Volume-Profit analysis approach.
- b) Draw network, find out CP & PD. Calculate All floats of each non-critical Activity.

Activity	A	B	C	D	E	F	G	H	I	J
Immediate Predecessor	-	-	A	A	B, C	B, C	E	E	D, G	F, H, I
Time in Weeks	15	15	3	5	8	12	1	14	3	14

- c) Find the probability of completing the project 3 weeks earlier than expected project duration.

Activity	Estimated Time		
	to	tm	tp
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

Probability Factor	Probability
0	50%
1	84.13%
2	97.72%
3	99.87%

- d) Explain “Assignment Model’ & ‘Transportation Model’ as a special case of LPP with its assumption, Applications in Operation Research.
- e) What are the direct expenses and selling over heads in project costing? Elaborate each.
- f) Explain ERP with its characteristics, Application, and benefits in business execution.
- g) How SIMULATION is versatile tool in Quantitative techniques? Explain its Advantages, Limitations and use in different sector.

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no. 03 (Starting page of the Answer Book).
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) _____ problem is a special problem of LPP.
 - a) Queuing
 - b) Transportation
 - c) Simulation
 - d) Decision Tree
- 2) Choose the correct condition for crashing
(If CC= crash cost, NC= normal cost, CD= crash duration, ND= normal duration)
 - a) $CC < NC, CD < ND$
 - b) $CC < NC, CD > ND$
 - c) $CC > NC, CD > ND$
 - d) $CC > NC, CD < ND$
- 3) An _____ is a set of processes and procedures that transform data into information and knowledge.
 - a) Information system
 - b) Knowledge system
 - c) Database system
 - d) Computer system
- 4) _____ is a standard that companies compare themselves to and strive to be that good.
 - a) Production
 - b) Benchmarking
 - c) Structuring
 - d) Formatting
- 5) Basically, _____ is raw material that is to be processed, while _____ is the processed data.
 - a) information, data
 - b) data, information
 - c) format, detailing
 - d) goods, services
- 6) Moderate inventory control is sufficient for _____.
 - a) A class items
 - b) B class items
 - c) C Class items
 - d) All of these
- 7) _____ models to analysis a problem and provides possible solution for management evaluation.
 - a) Decision
 - b) Standard
 - c) Structural
 - d) Periodic
- 8) The person who ensures that systems are developed on time, within budget, and with acceptable quality is a _____.
 - a) systems designer
 - b) project manager
 - c) systems owner
 - d) systems builder

- 9) Total quality costs include: _____.
- a) Prevention costs b) Appraisal costs
c) Failure costs d) All of the given options
- 10) Dual of the Dual is _____.
- a) Primal b) Dual
c) Zero d) Infinity
- 11) Which of the following tool is used when there is uncertainty in activity duration?
- a) PERT b) milestone chart
c) CPM d) bar chart
- 12) Please read the following statements:
i) Critical path has no float and it determines the project completion period.
ii) Critical path is the comparatively longest path
Which of the above statements is/are wrong?
- a) Neither i nor ii b) i
c) ii d) both i & ii
- 13) PERT is a Project Management tool for managing _____.
- a) Time b) Cost
c) Quality d) Resources
- 14) Which of the following is not a characteristic of a project?
- a) Unique b) Heterogeneous
c) Infinite duration d) Non-repetitive
- 15) The early finish time of an activity is always _____.
- a) Greater than earliest start time of succeeding activity
b) less than earliest start time of succeeding activity
c) Less than or equal to earliest start time of the succeeding activity
d) greater than or equal to earliest start time of the succeeding activity
- 16) _____ is the maximum delay possible for an activity if succeeding activity starts as early as possible and preceding activity ends as late as possible.
- a) interfering float b) total float
c) independent float d) free float
- 17) In PERT calculation, if factor Z comes negative then Probability of completion of project in scheduled time is always _____.
- a) 100% b) 50%
c) less than 50% d) greater than 50%
- 18) Hungarian method is suitable for _____.
- a) Graphical Problem b) Transportation Model
c) Simplex Problem d) Assignment Model
- 19) Odd man out.
- a) Cost of Fuel b) Depreciation Cost
c) Repair & Maintenance Cost d) Operator salary
- 20) _____ means one employee getting orders and instructions from one supervisor.
- a) Order b) Remuneration
c) Discipline d) Unity of command

Seat No.	
----------	--

Set **R**

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024

Max. Marks: 80

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR from the following. 40

- a) 1) Draw the Bar Chart for the project with following data and find the project duration.

Activity	A	B	C	D	E	F	G	H	I	J	K
Preceding Activities	-	-	A	B	C	D	E & F	G	H	H	I & J
Duration (Days)	6	2	3	2	4	1	1	6	3	1	1

- 2) Distinguish Bar chart and Mile stone chart.
- b) What are different costs incurred in Project? What are the basic phases of a project and their purposes ?
- c) Explain about Strategic Cost Management Process.
- d) What are the of databases? explain about Distributed Database and Operational Database with figure.
- e) What is Cost Management in Project management? Also explain Cost concepts in decision making.
- f) List Reasons for Project Failure and how to avert disaster, and state cost control techniques.
- g) Elaborate the following, and duties of the same,
1) Project Manager.
2) Project Team Member.
3) Project Sponsor.

Section – II

Q.3 Attempt any FOUR from the following. 40

- a) What is 'Break Even Analysis'? Explain with analytical and graphical approach. Also attach Cost-Volume-Profit analysis approach.
- b) Draw network, find out CP & PD. Calculate All floats of each non-critical Activity.

Activity	A	B	C	D	E	F	G	H	I	J
Immediate Predecessor	-	-	A	A	B, C	B, C	E	E	D, G	F, H, I
Time in Weeks	15	15	3	5	8	12	1	14	3	14

- c) Find the probability of completing the project 3 weeks earlier than expected project duration.

Activity	Estimated Time		
	to	tm	tp
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

Probability Factor	Probability
0	50%
1	84.13%
2	97.72%
3	99.87%

- d) Explain “Assignment Model” & ‘Transportation Model’ as a special case of LPP with its assumption, Applications in Operation Research.
- e) What are the direct expenses and selling over heads in project costing? Elaborate each.
- f) Explain ERP with its characteristics, Application, and benefits in business execution.
- g) How SIMULATION is versatile tool in Quantitative techniques? Explain its Advantages, Limitations and use in different sector.

Seat No.	
----------	--

Set **S**

**Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Cost Management of Engineering Projects (BTN01807)

Day & Date: Saturday, 11-05-2024

Max. Marks: 80

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR from the following.

40

- a) 1) Draw the Bar Chart for the project with following data and find the project duration.

Activity	A	B	C	D	E	F	G	H	I	J	K
Preceding Activities	-	-	A	B	C	D	E & F	G	H	H	I & J
Duration (Days)	6	2	3	2	4	1	1	6	3	1	1

- 2) Distinguish Bar chart and Mile stone chart.
- b) What are different costs incurred in Project? What are the basic phases of a project and their purposes ?
- c) Explain about Strategic Cost Management Process.
- d) What are the of databases? explain about Distributed Database and Operational Database with figure.
- e) What is Cost Management in Project management? Also explain Cost concepts in decision making.
- f) List Reasons for Project Failure and how to avert disaster, and state cost control techniques.
- g) Elaborate the following, and duties of the same,
1) Project Manager.
2) Project Team Member.
3) Project Sponsor.

Section – II

Q.3 Attempt any FOUR from the following.

40

- a) What is 'Break Even Analysis'? Explain with analytical and graphical approach. Also attach Cost-Volume-Profit analysis approach.
- b) Draw network, find out CP & PD. Calculate All floats of each non-critical Activity.

Activity	A	B	C	D	E	F	G	H	I	J
Immediate Predecessor	-	-	A	A	B, C	B, C	E	E	D, G	F, H, I
Time in Weeks	15	15	3	5	8	12	1	14	3	14

- c) Find the probability of completing the project 3 weeks earlier than expected project duration.

Activity	Estimated Time		
	to	tm	tp
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

Probability Factor	Probability
0	50%
1	84.13%
2	97.72%
3	99.87%

- d) Explain "Assignment Model" & "Transportation Model" as a special case of LPP with its assumption, Applications in Operation Research.
- e) What are the direct expenses and selling over heads in project costing? Elaborate each.
- f) Explain ERP with its characteristics, Application, and benefits in business execution.
- g) How SIMULATION is versatile tool in Quantitative techniques? Explain its Advantages, Limitations and use in different sector.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no. 03 (Starting page of the Answer Book).
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) The destructive powers of tsunami result mainly from their _____.
 - a) Incredible height
 - b) Unpredictability
 - c) Cold water
 - d) Momentum and long wavelength
- 2) Which event produces the biggest tsunami?
 - a) Earthquake
 - b) Under water landslides
 - c) Hurricanes
 - d) Impacts of asteroids and comets
- 3) As the magnitude of natural disasters increases their frequency of occurrence _____.

a) Increases	b) Decreases
c) Remains the same	d) Unpredictable
- 4) The largest wave during a tsunami event is _____.
 - a) The first
 - b) The third
 - c) Unpredictable, it could be any of them
 - d) The fifth
- 5) Landslides occurs due to _____.
 - a) Intensity of rainfall
 - b) Steep slopes
 - c) Deforestation leading it soil erosion
 - d) All of the above
- 6) The National Institute of Disaster Management (NIDM) is at _____.

a) New Delhi	b) Mumbai
c) Chennai	d) Kolkata

- 7) The nodal department for wind detection IMD refers to _____.
a) Indian Meteorological Department
b) Indian Metrological Department
c) Indian Metallurgical Department
d) None of these
- 8) The first step in preparedness planning is _____.
a) Analysis of data collected
b) Determination of objectives
c) Development of implementing device
d) Determination of strategy
- 9) The eye of a cyclone is _____.
a) Cloudy and highly stormy
b) Full of strong winds
c) Calm and cloudless
d) Site with high atmospheric pressure
- 10) What does the acronym ISDR stands for?
a) International Significant Disaster Resource
b) International Sustainable Development Report
c) International Strategy for Disaster Reduction
d) National Strategy for Developing Recreation
- 11) A flash flood is a flood that _____.
a) Is caused by heavy rain
b) Occurs suddenly & unexpectedly and for short duration
c) Occurs in urban areas
d) Is caused by blocking of drains
- 12) The change in elevation of a stream per unit length is called _____.
a) Base level
b) Gradient
c) Velocity
d) Discharge
- 13) Tsunami is classified as _____.
a) Water hazard
b) Environmental Hazard
c) Biological hazard
d) Geological hazard
- 14) Flash floods are often caused _____.
a) By thunderstorms
b) By dikes & dams that are too high
c) By rainfall over many days
d) By river beds that are too high
- 15) What is speed of tsunami waves?
a) 40 m/hr
b) 100 km/hr
c) 9000 km/hr
d) 800 km/hr
- 16) Channelization of streams is designed to reduce flooding by _____.
a) Speeding the passage of flood waters
b) Reducing bank erosion
c) Slowing down river velocity so as to reduce damage
d) Increase the meandering of streams
- 17) These include actions taken to return to normal once an emergency occurs _____.
a) Mitigation
b) Preparedness
c) Response
d) Recovery

- 18)** Dams are designed to reduce flooding by _____.
- a) Protecting river banks from erosion
 - b) Providing storage for flood water
 - c) Increasing the d/s velocity of flood water
 - d) Trapping sediment behind the dam
- 19)** The point at which a fault first ruptures in the earth is called the _____.
- a) Hypocenter
 - b) Hypicenter
 - c) Epicenter
 - d) Hypercenter
- 20)** Following safety standards in selecting building materials is an example of this type of activity.
- a) Mitigation
 - b) Preparedness
 - c) Response
 - d) Recovery

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain environmental disaster risk reduction using ecosystem approach. **09**
b) Explain the concept of environmental hazard. State environmental stress. **05**
- Q.3** a) Explain the Earthquake. State its hazardous effects. **08**
b) Explain the causes of landslides. **05**
- Q.4** a) Describe the causes of Cyclones. **08**
b) Explain about one of the recent earthquakes in India. **05**
- Q.5** a) Explain conservation measures of soil erosion. **08**
b) Describe the term population explosion. **05**

Section – II

- Q.6** a) Define disaster management cycle. Briefly explain its various phases. **09**
b) Discuss the immediate relief measures to be taken for disaster victims. **05**
- Q.7** a) Explain the role of seismological observatory in disaster mitigation. **08**
b) Explain the role of GIS and GPS in disaster mitigation. **05**
- Q.8** a) Elaborate the role of Panchayats in Disaster mitigation. **05**
b) Discuss the Disaster Management Act- 2005. **08**
- Q.9** a) Discuss the details for disaster of hills in India. **08**
b) Describe the National Institute of Disaster Management. **05**

- 19)** The largest wave during a tsunami event is _____.
- a) The first
 - b) The third
 - c) Unpredictable, it could be any of them
 - d) The fifth
- 20)** Landslides occurs due to _____.
- a) Intensity of rainfall
 - b) Steep slopes
 - c) Deforestation leading it soil erosion
 - d) All of the above

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | | |
|------------|-----------|--------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain environmental disaster risk reduction using ecosystem approach. | 09 |
| | b) | Explain the concept of environmental hazard. State environmental stress. | 05 |
| Q.3 | a) | Explain the Earthquake. State its hazardous effects. | 08 |
| | b) | Explain the causes of landslides. | 05 |
| Q.4 | a) | Describe the causes of Cyclones. | 08 |
| | b) | Explain about one of the recent earthquakes in India. | 05 |
| Q.5 | a) | Explain conservation measures of soil erosion. | 08 |
| | b) | Describe the term population explosion. | 05 |

Section – II

- | | | | |
|------------|-----------|-------------------------------------------------------------------------|-----------|
| Q.6 | a) | Define disaster management cycle. Briefly explain its various phases. | 09 |
| | b) | Discuss the immediate relief measures to be taken for disaster victims. | 05 |
| Q.7 | a) | Explain the role of seismological observatory in disaster mitigation. | 08 |
| | b) | Explain the role of GIS and GPS in disaster mitigation. | 05 |
| Q.8 | a) | Elaborate the role of Panchayats in Disaster mitigation. | 05 |
| | b) | Discuss the Disaster Management Act- 2005. | 08 |
| Q.9 | a) | Discuss the details for disaster of hills in India. | 08 |
| | b) | Describe the National Institute of Disaster Management. | 05 |

Seat No.	
-------------	--

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no. 03 (Starting page of the Answer Book).
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) A flash flood is a flood that _____.
 - a) Is caused by heavy rain
 - b) Occurs suddenly & unexpectedly and for short duration
 - c) Occurs in urban areas
 - d) Is caused by blocking of drains
- 2) The change in elevation of a stream per unit length is called _____.
 - a) Base level
 - b) Gradient
 - c) Velocity
 - d) Discharge
- 3) Tsunami is classified as _____.
 - a) Water hazard
 - b) Environmental Hazard
 - c) Biological hazard
 - d) Geological hazard
- 4) Flash floods are often caused _____.
 - a) By thunderstorms
 - b) By dikes & dams that are too high
 - c) By rainfall over many days
 - d) By river beds that are too high
- 5) What is speed of tsunami waves?
 - a) 40 m/hr
 - b) 100 km/hr
 - c) 9000 km/hr
 - d) 800 km/hr
- 6) Channelization of streams is designed to reduce flooding by _____.
 - a) Speeding the passage of flood waters
 - b) Reducing bank erosion
 - c) Slowing down river velocity so as to reduce damage
 - d) Increase the meandering of streams
- 7) These include actions taken to return to normal once an emergency occurs _____.
 - a) Mitigation
 - b) Preparedness
 - c) Response
 - d) Recovery

- 8) Dams are designed to reduce flooding by _____.
a) Protecting river banks from erosion
b) Providing storage for flood water
c) Increasing the d/s velocity of flood water
d) Trapping sediment behind the dam
- 9) The point at which a fault first ruptures in the earth is called the _____.
a) Hypocenter
b) Hypicenter
c) Epicenter
d) Hypercenter
- 10) Following safety standards in selecting building materials is an example of this type of activity.
a) Mitigation
b) Preparedness
c) Response
d) Recovery
- 11) The destructive powers of tsunami result mainly from their _____.
a) Incredible height
b) Unpredictability
c) Cold water
d) Momentum and long wavelength
- 12) Which event produces the biggest tsunami?
a) Earthquake
b) Under water landslides
c) Hurricanes
d) Impacts of asteroids and comets
- 13) As the magnitude of natural disasters increases their frequency of occurrence _____.
a) Increases
b) Decreases
c) Remains the same
d) Unpredictable
- 14) The largest wave during a tsunami event is _____.
a) The first
b) The third
c) Unpredictable, it could be any of them
d) The fifth
- 15) Landslides occurs due to _____.
a) Intensity of rainfall
b) Steep slopes
c) Deforestation leading it soil erosion
d) All of the above
- 16) The National Institute of Disaster Management (NIDM) is at _____.
a) New Delhi
b) Mumbai
c) Chennai
d) Kolkata
- 17) The nodal department for wind detection IMD refers to _____.
a) Indian Meteorological Department
b) Indian Metrological Department
c) Indian Metallurgical Department
d) None of these

- 18)** The first step in preparedness planning is _____.
- a) Analysis of data collected
 - b) Determination of objectives
 - c) Development of implementing device
 - d) Determination of strategy
- 19)** The eye of a cyclone is _____.
- a) Cloudy and highly stormy
 - b) Full of strong winds
 - c) Calm and cloudless
 - d) Site with high atmospheric pressure
- 20)** What does the acronym ISDR stands for?
- a) International Significant Disaster Resource
 - b) International Sustainable Development Report
 - c) International Strategy for Disaster Reduction
 - d) National Strategy for Developing Recreation

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | |
|------------|------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain environmental disaster risk reduction using ecosystem approach. | 09 |
| | b) Explain the concept of environmental hazard. State environmental stress. | 05 |
| Q.3 | a) Explain the Earthquake. State its hazardous effects. | 08 |
| | b) Explain the causes of landslides. | 05 |
| Q.4 | a) Describe the causes of Cyclones. | 08 |
| | b) Explain about one of the recent earthquakes in India. | 05 |
| Q.5 | a) Explain conservation measures of soil erosion. | 08 |
| | b) Describe the term population explosion. | 05 |

Section – II

- | | | |
|------------|-----------------------------------------------------------------------------------|-----------|
| Q.6 | a) Define disaster management cycle. Briefly explain its various phases. | 09 |
| | b) Discuss the immediate relief measures to be taken for disaster victims. | 05 |
| Q.7 | a) Explain the role of seismological observatory in disaster mitigation. | 08 |
| | b) Explain the role of GIS and GPS in disaster mitigation. | 05 |
| Q.8 | a) Elaborate the role of Panchayats in Disaster mitigation. | 05 |
| | b) Discuss the Disaster Management Act- 2005. | 08 |
| Q.9 | a) Discuss the details for disaster of hills in India. | 08 |
| | b) Describe the National Institute of Disaster Management. | 05 |

Seat No.	
----------	--

Set **S**

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no. 03 (Starting page of the Answer Book).
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) Channelization of streams is designed to reduce flooding by _____.
 - a) Speeding the passage of flood waters
 - b) Reducing bank erosion
 - c) Slowing down river velocity so as to reduce damage
 - d) Increase the meandering of streams
- 2) These include actions taken to return to normal once an emergency occurs _____.
 - a) Mitigation
 - b) Preparedness
 - c) Response
 - d) Recovery
- 3) Dams are designed to reduce flooding by _____.
 - a) Protecting river banks from erosion
 - b) Providing storage for flood water
 - c) Increasing the d/s velocity of flood water
 - d) Trapping sediment behind the dam
- 4) The point at which a fault first ruptures in the earth is called the _____.
 - a) Hypocenter
 - b) Hypicenter
 - c) Epicenter
 - d) Hypercenter
- 5) Following safety standards in selecting building materials is an example of this type of activity.
 - a) Mitigation
 - b) Preparedness
 - c) Response
 - d) Recovery
- 6) The destructive powers of tsunami result mainly from their _____.
 - a) Incredible height
 - b) Unpredictability
 - c) Cold water
 - d) Momentum and long wavelength
- 7) Which event produces the biggest tsunami?
 - a) Earthquake
 - b) Under water landslides
 - c) Hurricanes
 - d) Impacts of asteroids and comets

- 8) As the magnitude of natural disasters increases their frequency of occurrence _____.
a) Increases
b) Decreases
c) Remains the same
d) Unpredictable
- 9) The largest wave during a tsunami event is _____.
a) The first
b) The third
c) Unpredictable, it could be any of them
d) The fifth
- 10) Landslides occurs due to _____.
a) Intensity of rainfall
b) Steep slopes
c) Deforestation leading it soil erosion
d) All of the above
- 11) The National Institute of Disaster Management (NIDM) is at _____.
a) New Delhi
b) Mumbai
c) Chennai
d) Kolkata
- 12) The nodal department for wind detection IMD refers to _____.
a) Indian Meteorological Department
b) Indian Metrological Department
c) Indian Metallurgical Department
d) None of these
- 13) The first step in preparedness planning is _____.
a) Analysis of data collected
b) Determination of objectives
c) Development of implementing device
d) Determination of strategy
- 14) The eye of a cyclone is _____.
a) Cloudy and highly stormy
b) Full of strong winds
c) Calm and cloudless
d) Site with high atmospheric pressure
- 15) What does the acronym ISDR stands for?
a) International Significant Disaster Resource
b) International Sustainable Development Report
c) International Strategy for Disaster Reduction
d) National Strategy for Developing Recreation
- 16) A flash flood is a flood that _____.
a) Is caused by heavy rain
b) Occurs suddenly & unexpectedly and for short duration
c) Occurs in urban areas
d) Is caused by blocking of drains
- 17) The change in elevation of a stream per unit length is called _____.
a) Base level
b) Gradient
c) Velocity
d) Discharge

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Disaster Management (BTN01808)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed and mention it clearly.

Section – I

- | | | | |
|------------|----|--------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain environmental disaster risk reduction using ecosystem approach. | 09 |
| | b) | Explain the concept of environmental hazard. State environmental stress. | 05 |
| Q.3 | a) | Explain the Earthquake. State its hazardous effects. | 08 |
| | b) | Explain the causes of landslides. | 05 |
| Q.4 | a) | Describe the causes of Cyclones. | 08 |
| | b) | Explain about one of the recent earthquakes in India. | 05 |
| Q.5 | a) | Explain conservation measures of soil erosion. | 08 |
| | b) | Describe the term population explosion. | 05 |

Section – II

- | | | | |
|------------|----|-------------------------------------------------------------------------|-----------|
| Q.6 | a) | Define disaster management cycle. Briefly explain its various phases. | 09 |
| | b) | Discuss the immediate relief measures to be taken for disaster victims. | 05 |
| Q.7 | a) | Explain the role of seismological observatory in disaster mitigation. | 08 |
| | b) | Explain the role of GIS and GPS in disaster mitigation. | 05 |
| Q.8 | a) | Elaborate the role of Panchayats in Disaster mitigation. | 05 |
| | b) | Discuss the Disaster Management Act- 2005. | 08 |
| Q.9 | a) | Discuss the details for disaster of hills in India. | 08 |
| | b) | Describe the National Institute of Disaster Management. | 05 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ are used to make predictions and conclusions based on how two random variables are connected.

a) Casual Models	b) Simple Models
c) Statistical models	d) Stochastic Models

- 2) _____ is an application of conservation of mass to the analysis of physical system.

a) Mass balance	b) Rate Constants
c) Conservation of mass	d) Law of mass action

- 3) Ground water models are used to predict the effect of hydrological changes on the behavior of _____.

a) Soil water zone	b) Aquifer
c) Capillary zone	d) Intermediate zone

- 4) Water quality model is a mathematical representation of _____ from land-based sources to a water body.

a) Inorganic Pollutants	b) Contamination of pollutants
c) Movement of pollutant	d) Volatile compounds

- 5) _____ is a biological process in which certain bacteria are capable of converting atmospheric nitrogen to ammonia.

a) Denitrification	b) Ammonification
c) Nitrogen fixation	d) Assimilation

- 6) _____ equation is used as water quality model to describe decrease of DO content in a river along a certain distance by degradation of BOD.

a) Delphi method	b) Streeter Phelps
c) Le Chatelier's	d) Darcy

- 7) _____ refers to a disposal pattern of gaseous pollutants in atmosphere depending upon wind condition, atmospheric stability and vertical temperature gradient.

a) Plume behavior	b) Dispersion
c) Air Emission	d) Lapse rate

- 20)** The monitoring and evaluation of ambient air quality is first important steps in _____ air pollution.
- | | |
|------------------|----------------|
| a) Rapid mixing | b) Refraction |
| c) Agglomeration | d) Controlling |

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|--------------------------------------------------------------|-----------|
| Q.2 | a) Explain the importance of Casual Model. | 07 |
| | b) Explain 5 major air pollutants and their health effects. | 07 |
| Q.3 | a) Explain the purpose of water quality model. | 07 |
| | b) What factors affect the intensity of Oxygen sag curve? | 06 |
| Q.4 | a) What are limitations of ground water model? | 07 |
| | b) How can meteorology help in controlling air pollutants? | 06 |
| Q.5 | a) Explain with neat sketch how Oxygen Sag Curve is created. | 07 |
| | b) Write Short Notes on: | 06 |
| | i) Methods of Calibration | |
| | ii) Mechanism of pollutant transport | |

Section – II

- | | | |
|------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Explain the features of Gaussian Plume Model. | 07 |
| | b) Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) Explain the advantages of Delphi model. | 06 |
| Q.8 | a) What are the modern techniques for controlling environmental pollution? | 07 |
| | b) What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) Explain theory of diffusion model and how it is useful in decision making. | 07 |
| | b) Write Short Notes on: | 06 |
| | i) Air Quality Index | |
| | ii) Ambient Water Quality | |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ equation is used as water quality model to describe decrease of DO content in a river along a certain distance by degradation of BOD.

a) Delphi method	b) Streeter Phelps
c) Le Chatelier's	d) Darcy

- 2) _____ refers to a disposal pattern of gaseous pollutants in atmosphere depending upon wind condition, atmospheric stability and vertical temperature gradient.

a) Plume behavior	b) Dispersion
c) Air Emission	d) Lapse rate

- 3) _____ are used to forecast the increase in algal growth and to predict the effect of some management decision.

a) Water model	b) Transition model
c) Lake model	d) DO sag curve

- 4) _____ is a difference in wind speed or direction over short distance in Atmosphere.

a) Atmospheric stability	b) Temperature gradient
c) Wind shear	d) Solar radiation

- 5) _____ use mathematical relationship to represent complex decision so that future demand can be predicted at various levels of geography.

a) Transport model	b) Building model
c) Diffusion model	d) Statistical model

- 6) _____ is typically used for predicting pollutant levels under "worst scenarios".

a) Long term modeling	b) Short term modeling
c) Intermediate modeling	d) Sub standard modeling

- 7) _____ take the pollutant concentration to distribute in both horizontal and vertical aspects.

a) Atmospheric model	b) Transport model
c) Gaussian model	d) Diffusion model

- 20)** _____ is a biological process in which certain bacteria are capable of converting atmospheric nitrogen to ammonia.
- a) Denitrification
 - b) Ammonification
 - c) Nitrogen fixation
 - d) Assimilation

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|--------------------------------------------------------------|-----------|
| Q.2 | a) Explain the importance of Casual Model. | 07 |
| | b) Explain 5 major air pollutants and their health effects. | 07 |
| Q.3 | a) Explain the purpose of water quality model. | 07 |
| | b) What factors affect the intensity of Oxygen sag curve? | 06 |
| Q.4 | a) What are limitations of ground water model? | 07 |
| | b) How can meteorology help in controlling air pollutants? | 06 |
| Q.5 | a) Explain with neat sketch how Oxygen Sag Curve is created. | 07 |
| | b) Write Short Notes on: | 06 |
| | i) Methods of Calibration | |
| | ii) Mechanism of pollutant transport | |

Section – II

- | | | |
|------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Explain the features of Gaussian Plume Model. | 07 |
| | b) Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) Explain the advantages of Delphi model. | 06 |
| Q.8 | a) What are the modern techniques for controlling environmental pollution? | 07 |
| | b) What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) Explain theory of diffusion model and how it is useful in decision making. | 07 |
| | b) Write Short Notes on: | 06 |
| | i) Air Quality Index | |
| | ii) Ambient Water Quality | |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ is typically used for predicting pollutant levels under "worst scenarios".
 - a) Long term modeling
 - b) Short term modeling
 - c) Intermediate modeling
 - d) Sub standard modeling
- 2) _____ take the pollutant concentration to distribute in both horizontal and vertical aspects.
 - a) Atmospheric model
 - b) Transport model
 - c) Gaussian model
 - d) Diffusion model
- 3) The suitability of water sources for human consumption is described in terms of _____.
 - a) Non reactive index
 - b) Extreme value index
 - c) Water quality index
 - d) Water control index
- 4) WQI concept is based on the factor _____.
 - a) Parameter selection for measurement
 - b) Transformation and raw data parameter
 - c) Aggregation of sub index values
 - d) All of above
- 5) _____ is generally used to summarize specific expert opinions to develop parameter weight for different water quality index.
 - a) Streeter Phelps method
 - b) Le Chatelier's method
 - c) Newton method
 - d) Delphi method
- 6) _____ is used to integrate the opinion of water expert on sub index value.
 - a) Delphi method
 - b) Newton method
 - c) Streeter Phelps method
 - d) Henry's method
- 7) The behavior and dispersion of plume entirely depends on _____.
 - a) Adiabatic Lapse Rate
 - b) Environmental Lapse Rate
 - c) Sub Adiabatic Lapse Rate
 - d) Standard Temperature Lapse Rate

- 20) _____ use mathematical relationship to represent complex decision so that future demand can be predicted at various levels of geography.
- a) Transport model
 - b) Building model
 - c) Diffusion model
 - d) Statistical model

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|-----------|-----------------------------------------------------------|-----------|
| Q.2 | a) | Explain the importance of Casual Model. | 07 |
| | b) | Explain 5 major air pollutants and their health effects. | 07 |
| Q.3 | a) | Explain the purpose of water quality model. | 07 |
| | b) | What factors affect the intensity of Oxygen sag curve? | 06 |
| Q.4 | a) | What are limitations of ground water model? | 07 |
| | b) | How can meteorology help in controlling air pollutants? | 06 |
| Q.5 | a) | Explain with neat sketch how Oxygen Sag Curve is created. | 07 |
| | b) | Write Short Notes on: | 06 |
| | | i) Methods of Calibration | |
| | | ii) Mechanism of pollutant transport | |

Section – II

- | | | | |
|------------|-----------|--------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the features of Gaussian Plume Model. | 07 |
| | b) | Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) | Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) | Explain the advantages of Delphi model. | 06 |
| Q.8 | a) | What are the modern techniques for controlling environmental pollution? | 07 |
| | b) | What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) | Explain theory of diffusion model and how it is useful in decision making. | 07 |
| | b) | Write Short Notes on: | 06 |
| | | i) Air Quality Index | |
| | | ii) Ambient Water Quality | |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ is used to integrate the opinion of water expert on sub index value.

a) Delphi method	b) Newton method
c) Streeter Phelps method	d) Henry's method
- 2) The behavior and dispersion of plume entirely depends on _____.

a) Adiabatic Lapse Rate	b) Environmental Lapse Rate
c) Sub Adiabatic Lapse Rate	d) Standard Temperature Lapse Rate
- 3) In a Gaussian model emissions and meteorological condition remains _____.

a) Unstable	b) Extremely stable
c) Constant	d) turbulence
- 4) Water quality index is one of the most used tools to describe _____.

a) Water quality	b) Salinity
c) Physical characteristics	d) BOD level
- 5) The monitoring and evaluation of ambient air quality is first important steps in _____ air pollution.

a) Rapid mixing	b) Refraction
c) Agglomeration	d) Controlling
- 6) _____ are used to make predictions and conclusions based on how two random variables are connected.

a) Casual Models	b) Simple Models
c) Statistical models	d) Stochastic Models
- 7) _____ is an application of conservation of mass to the analysis of physical system.

a) Mass balance	b) Rate Constants
c) Conservation of mass	d) Law of mass action
- 8) Ground water models are used to predict the effect of hydrological changes on the behavior of _____.

a) Soil water zone	b) Aquifer
c) Capillary zone	d) Intermediate zone

- 9) Water quality model is a mathematical representation of _____ from land-based sources to a water body.
- a) Inorganic Pollutants b) Contamination of pollutants
c) Movement of pollutant d) Volatile compounds
- 10) _____ is a biological process in which certain bacteria are capable of converting atmospheric nitrogen to ammonia.
- a) Denitrification b) Ammonification
c) Nitrogen fixation d) Assimilation
- 11) _____ equation is used as water quality model to describe decrease of DO content in a river along a certain distance by degradation of BOD.
- a) Delphi method b) Streeter Phelps
c) Le Chatelier's d) Darcy
- 12) _____ refers to a disposal pattern of gaseous pollutants in atmosphere depending upon wind condition, atmospheric stability and vertical temperature gradient.
- a) Plume behavior b) Dispersion
c) Air Emission d) Lapse rate
- 13) _____ are used to forecast the increase in algal growth and to predict the effect of some management decision.
- a) Water model b) Transition model
c) Lake model d) DO sag curve
- 14) _____ is a difference in wind speed or direction over short distance in Atmosphere.
- a) Atmospheric stability b) Temperature gradient
c) Wind shear d) Solar radiation
- 15) _____ use mathematical relationship to represent complex decision so that future demand can be predicted at various levels of geography.
- a) Transport model b) Building model
c) Diffusion model d) Statistical model
- 16) _____ is typically used for predicting pollutant levels under "worst scenarios".
- a) Long term modeling b) Short term modeling
c) Intermediate modeling d) Sub standard modeling
- 17) _____ take the pollutant concentration to distribute in both horizontal and vertical aspects.
- a) Atmospheric model b) Transport model
c) Gaussian model d) Diffusion model
- 18) The suitability of water sources for human consumption is described in terms of _____.
- a) Non reactive index b) Extreme value index
c) Water quality index d) Water control index
- 19) WQI concept is based on the factor _____.
- a) Parameter selection for measurement
b) Transformation and raw data parameter
c) Aggregation of sub index values
d) All of above

- 20)** _____ is generally used to summarize specific expert opinions to develop parameter weight for different water quality index.
- a) Streeter Phelps method
 - b) Le Chatelier's method
 - c) Newton method
 - d) Delphi method

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Water and Air Quality Modelling (BTN01809)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|---------------------------------------------------------------------|-----------|
| Q.2 | a) Explain the importance of Casual Model. | 07 |
| | b) Explain 5 major air pollutants and their health effects. | 07 |
| Q.3 | a) Explain the purpose of water quality model. | 07 |
| | b) What factors affect the intensity of Oxygen sag curve? | 06 |
| Q.4 | a) What are limitations of ground water model? | 07 |
| | b) How can meteorology help in controlling air pollutants? | 06 |
| Q.5 | a) Explain with neat sketch how Oxygen Sag Curve is created. | 07 |
| | b) Write Short Notes on: | 06 |
| | i) Methods of Calibration | |
| | ii) Mechanism of pollutant transport | |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Explain the features of Gaussian Plume Model. | 07 |
| | b) Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) Explain the advantages of Delphi model. | 06 |
| Q.8 | a) What are the modern techniques for controlling environmental pollution? | 07 |
| | b) What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) Explain theory of diffusion model and how it is useful in decision making. | 07 |
| | b) Write Short Notes on: | 06 |
| | i) Air Quality Index | |
| | ii) Ambient Water Quality | |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) Which of the following is NOT a physical property of silica fume?

a) Fine particle size	b) High specific surface area
c) Porous structure	d) Low density
- 2) What mechanical property of silica fume concrete is typically improved compared to conventional concrete?

a) Tensile strength	b) Compressive strength
c) Flexural strength	d) Shear strength
- 3) Which of the following is NOT a constituent material in Fiber Reinforced Concrete?

a) Cement	b) Water
c) Aggregate	d) Wood
- 4) The purpose of adding fibers to concrete is to: _____.

a) Increase compressive strength	b) Increase tensile strength
c) Increase flexural strength	d) All of the above
- 5) Behavior of Fiber Reinforced Concrete under compression is: _____.

a) Brittle	b) Ductile
c) Same as conventional concrete	d) Unpredictable
- 6) What is ferrocement primarily composed of?

a) Cement and sand	b) Cement and steel
c) Concrete and steel	d) Concrete and sand
- 7) What is silica fume?

a) A type of aggregate	b) A byproduct of silicon metal production
c) A type of cement	d) A chemical admixture

- 8) What is polymer concrete?
- Concrete mixed with polymer fibers
 - Concrete mixed with polymer resins
 - Concrete mixed with polymer additives
 - Concrete mixed with polymer beads
- 9) What is a key characteristic of High Strength Concrete (HSC)?
- Low compressive strength
 - High water-cement ratio
 - High compressive strength
 - Low workability
- 10) Which microstructural feature contributes significantly to the strength of High Strength Concrete?
- Large aggregate size
 - Dense matrix
 - High water content
 - Air voids
- 11) The mix proportion of Fiber Reinforced Concrete depends on: _____.
- Type of fibers used
 - Desired properties
 - Design requirements
 - All of the above
- 12) Which of the following mechanical properties is NOT typically associated with ferrocement?
- High tensile strength
 - Low elasticity
 - High compressive strength
 - High ductility
- 13) What is the main chemical component of silica fume?
- Silicon dioxide (SiO₂)
 - Calcium oxide (CaO)
 - Aluminum oxide (Al₂O₃)
 - Magnesium oxide (MgO)
- 14) In ferrocement design, what parameter is typically optimized for minimizing cracking?
- Cement content
 - Water-cement ratio
 - Aggregate size
 - Reinforcement spacing
- 15) Which of the following is a classification of polymer concrete based on the type of polymer used?
- Epoxy polymer concrete
 - Polyester polymer concrete
 - Acrylic polymer concrete
 - All of the above
- 16) Polymer concrete is commonly used in the construction of _____.
- High-rise buildings
 - Bridges and tunnels
 - Wooden structures
 - Agricultural buildings
- 17) What distinguishes High Strength Concrete from conventional concrete?
- Higher water-cement ratio
 - Lower compressive strength
 - Lower density
 - Higher compressive strength
- 18) What is the typical ratio of cement to sand used in ferrocement mixtures?
- 1:1
 - 1:2
 - 1:3
 - 1:4
- 19) Which of the following is a common method for applying the mortar layer in ferrocement construction?
- Hand painting
 - Roller application
 - Spraying
 - Stamping

- 20)** Polymer concrete exhibits _____ compared to traditional concrete.
- a) Lower shrinkage
 - b) Higher permeability
 - c) Lower tensile strength
 - d) Higher porosity

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required and state it clearly.

Section – I

- Q.2 Solve any two. 16**
- a) Explains the behavior of fiber reinforced concrete under the compression, tension and flexure.
 - b) What is mean by Fiber Reinforced Concrete. Explain the different types of Fibers used for construction of Fiber Reinforced Concrete.
 - c) Explains the factors affecting the properties of Fiber Reinforced Concrete.
- Q.3 Solve any four. 24**
- a) Explains the mechanical properties of Ferro cement?
 - b) Explain the materials used in Ferro cement.
 - c) What are the applications of Ferrocement.
 - d) Explains the merits of Ferro cement as a structural material?
 - e) Explain the properties of freshly mixed fiber reinforced concrete.
 - f) What is workability of Concrete? Explain the methods of measurement of workability.

Section – II

- Q.4 Solve any two. 16**
- a) Explain the physical and mechanical properties of Silica Fume Concrete with respect to durability of concrete.
 - b) State the applications of Silica Fume Concrete.
 - c) Explain the reaction mechanism of Silica Fume Concrete.
- Q.5 Solve any four. 24**
- a) Write note on types of polymer concrete.
 - b) Explain properties of constituent materials of Polymer Concrete.
 - c) Explain different physical and chemical properties of Silica Fumes.
 - d) What are the applications of polymer impregnated concrete and polymer concrete?
 - e) What is high performance concrete? Explain the properties of high-performance concrete.
 - f) What are the design consideration for High performance concrete?

Seat
No.

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) What is ferrocement primarily composed of?
 - a) Cement and sand
 - b) Cement and steel
 - c) Concrete and steel
 - d) Concrete and sand
- 2) What is silica fume?
 - a) A type of aggregate
 - b) A byproduct of silicon metal production
 - c) A type of cement
 - d) A chemical admixture
- 3) What is polymer concrete?
 - a) Concrete mixed with polymer fibers
 - b) Concrete mixed with polymer resins
 - c) Concrete mixed with polymer additives
 - d) Concrete mixed with polymer beads
- 4) What is a key characteristic of High Strength Concrete (HSC)?
 - a) Low compressive strength
 - b) High water-cement ratio
 - c) High compressive strength
 - d) Low workability
- 5) Which microstructural feature contributes significantly to the strength of High Strength Concrete?
 - a) Large aggregate size
 - b) Dense matrix
 - c) High water content
 - d) Air voids
- 6) The mix proportion of Fiber Reinforced Concrete depends on: _____.
 - a) Type of fibers used
 - b) Desired properties
 - c) Design requirements
 - d) All of the above
- 7) Which of the following mechanical properties is NOT typically associated with ferrocement?
 - a) High tensile strength
 - b) Low elasticity
 - c) High compressive strength
 - d) High ductility

- 8) What is the main chemical component of silica fume?
a) Silicon dioxide (SiO₂) b) Calcium oxide (CaO)
c) Aluminum oxide (Al₂O₃) d) Magnesium oxide (MgO)
- 9) In ferrocement design, what parameter is typically optimized for minimizing cracking?
a) Cement content b) Water-cement ratio
c) Aggregate size d) Reinforcement spacing
- 10) Which of the following is a classification of polymer concrete based on the type of polymer used?
a) Epoxy polymer concrete b) Polyester polymer concrete
c) Acrylic polymer concrete d) All of the above
- 11) Polymer concrete is commonly used in the construction of _____.
a) High-rise buildings b) Bridges and tunnels
c) Wooden structures d) Agricultural buildings
- 12) What distinguishes High Strength Concrete from conventional concrete?
a) Higher water-cement ratio b) Lower compressive strength
c) Lower density d) Higher compressive strength
- 13) What is the typical ratio of cement to sand used in ferrocement mixtures?
a) 1:1 b) 1:2
c) 1:3 d) 1:4
- 14) Which of the following is a common method for applying the mortar layer in ferrocement construction?
a) Hand painting b) Roller application
c) Spraying d) Stamping
- 15) Polymer concrete exhibits _____ compared to traditional concrete.
a) Lower shrinkage b) Higher permeability
c) Lower tensile strength d) Higher porosity
- 16) Which of the following is NOT a physical property of silica fume?
a) Fine particle size b) High specific surface area
c) Porous structure d) Low density
- 17) What mechanical property of silica fume concrete is typically improved compared to conventional concrete?
a) Tensile strength b) Compressive strength
c) Flexural strength d) Shear strength
- 18) Which of the following is NOT a constituent material in Fiber Reinforced Concrete?
a) Cement b) Water
c) Aggregate d) Wood
- 19) The purpose of adding fibers to concrete is to: _____.
a) Increase compressive strength b) Increase tensile strength
c) Increase flexural strength d) All of the above

- 20)** Behavior of Fiber Reinforced Concrete under compression is: _____.
- a) Brittle
 - b) Ductile
 - c) Same as conventional concrete
 - d) Unpredictable

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required and state it clearly.

Section – I

- Q.2 Solve any two.** **16**
- Explains the behavior of fiber reinforced concrete under the compression, tension and flexure.
 - What is mean by Fiber Reinforced Concrete. Explain the different types of Fibers used for construction of Fiber Reinforced Concrete.
 - Explains the factors affecting the properties of Fiber Reinforced Concrete.
- Q.3 Solve any four.** **24**
- Explains the mechanical properties of Ferro cement?
 - Explain the materials used in Ferro cement.
 - What are the applications of Ferrocement.
 - Explains the merits of Ferro cement as a structural material?
 - Explain the properties of freshly mixed fiber reinforced concrete.
 - What is workability of Concrete? Explain the methods of measurement of workability.

Section – II

- Q.4 Solve any two.** **16**
- Explain the physical and mechanical properties of Silica Fume Concrete with respect to durability of concrete.
 - State the applications of Silica Fume Concrete.
 - Explain the reaction mechanism of Silica Fume Concrete.
- Q.5 Solve any four.** **24**
- Write note on types of polymer concrete.
 - Explain properties of constituent materials of Polymer Concrete.
 - Explain different physical and chemical properties of Silica Fumes.
 - What are the applications of polymer impregnated concrete and polymer concrete?
 - What is high performance concrete? Explain the properties of high-performance concrete.
 - What are the design consideration for High performance concrete?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) The mix proportion of Fiber Reinforced Concrete depends on: _____.
 a) Type of fibers used b) Desired properties
 c) Design requirements d) All of the above
- 2) Which of the following mechanical properties is NOT typically associated with ferrocement?
 a) High tensile strength b) Low elasticity
 c) High compressive strength d) High ductility
- 3) What is the main chemical component of silica fume?
 a) Silicon dioxide (SiO₂) b) Calcium oxide (CaO)
 c) Aluminum oxide (Al₂O₃) d) Magnesium oxide (MgO)
- 4) In ferrocement design, what parameter is typically optimized for minimizing cracking?
 a) Cement content b) Water-cement ratio
 c) Aggregate size d) Reinforcement spacing
- 5) Which of the following is a classification of polymer concrete based on the type of polymer used?
 a) Epoxy polymer concrete b) Polyester polymer concrete
 c) Acrylic polymer concrete d) All of the above
- 6) Polymer concrete is commonly used in the construction of _____.
 a) High-rise buildings b) Bridges and tunnels
 c) Wooden structures d) Agricultural buildings
- 7) What distinguishes High Strength Concrete from conventional concrete?
 a) Higher water-cement ratio b) Lower compressive strength
 c) Lower density d) Higher compressive strength
- 8) What is the typical ratio of cement to sand used in ferrocement mixtures?
 a) 1:1 b) 1:2
 c) 1:3 d) 1:4

- 20)** Which microstructural feature contributes significantly to the strength of High Strength Concrete?
- a) Large aggregate size
 - b) Dense matrix
 - c) High water content
 - d) Air voids

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required and state it clearly.

Section – I

- Q.2 Solve any two. 16**
- a) Explains the behavior of fiber reinforced concrete under the compression, tension and flexure.
 - b) What is mean by Fiber Reinforced Concrete. Explain the different types of Fibers used for construction of Fiber Reinforced Concrete.
 - c) Explains the factors affecting the properties of Fiber Reinforced Concrete.
- Q.3 Solve any four. 24**
- a) Explains the mechanical properties of Ferro cement?
 - b) Explain the materials used in Ferro cement.
 - c) What are the applications of Ferrocement.
 - d) Explains the merits of Ferro cement as a structural material?
 - e) Explain the properties of freshly mixed fiber reinforced concrete.
 - f) What is workability of Concrete? Explain the methods of measurement of workability.

Section – II

- Q.4 Solve any two. 16**
- a) Explain the physical and mechanical properties of Silica Fume Concrete with respect to durability of concrete.
 - b) State the applications of Silica Fume Concrete.
 - c) Explain the reaction mechanism of Silica Fume Concrete.
- Q.5 Solve any four. 24**
- a) Write note on types of polymer concrete.
 - b) Explain properties of constituent materials of Polymer Concrete.
 - c) Explain different physical and chemical properties of Silica Fumes.
 - d) What are the applications of polymer impregnated concrete and polymer concrete?
 - e) What is high performance concrete? Explain the properties of high-performance concrete.
 - f) What are the design consideration for High performance concrete?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options. 20

- 1) Polymer concrete is commonly used in the construction of _____.
 a) High-rise buildings b) Bridges and tunnels
 c) Wooden structures d) Agricultural buildings
- 2) What distinguishes High Strength Concrete from conventional concrete?
 a) Higher water-cement ratio b) Lower compressive strength
 c) Lower density d) Higher compressive strength
- 3) What is the typical ratio of cement to sand used in ferrocement mixtures?
 a) 1:1 b) 1:2
 c) 1:3 d) 1:4
- 4) Which of the following is a common method for applying the mortar layer in ferrocement construction?
 a) Hand painting b) Roller application
 c) Spraying d) Stamping
- 5) Polymer concrete exhibits _____ compared to traditional concrete.
 a) Lower shrinkage b) Higher permeability
 c) Lower tensile strength d) Higher porosity
- 6) Which of the following is NOT a physical property of silica fume?
 a) Fine particle size b) High specific surface area
 c) Porous structure d) Low density
- 7) What mechanical property of silica fume concrete is typically improved compared to conventional concrete?
 a) Tensile strength b) Compressive strength
 c) Flexural strength d) Shear strength
- 8) Which of the following is NOT a constituent material in Fiber Reinforced Concrete?
 a) Cement b) Water
 c) Aggregate d) Wood

- 9) The purpose of adding fibers to concrete is to: _____.
- a) Increase compressive strength b) Increase tensile strength
c) Increase flexural strength d) All of the above
- 10) Behavior of Fiber Reinforced Concrete under compression is: _____.
- a) Brittle
b) Ductile
c) Same as conventional concrete
d) Unpredictable
- 11) What is ferrocement primarily composed of?
- a) Cement and sand b) Cement and steel
c) Concrete and steel d) Concrete and sand
- 12) What is silica fume?
- a) A type of aggregate
b) A byproduct of silicon metal production
c) A type of cement
d) A chemical admixture
- 13) What is polymer concrete?
- a) Concrete mixed with polymer fibers
b) Concrete mixed with polymer resins
c) Concrete mixed with polymer additives
d) Concrete mixed with polymer beads
- 14) What is a key characteristic of High Strength Concrete (HSC)?
- a) Low compressive strength b) High water-cement ratio
c) High compressive strength d) Low workability
- 15) Which microstructural feature contributes significantly to the strength of High Strength Concrete?
- a) Large aggregate size b) Dense matrix
c) High water content d) Air voids
- 16) The mix proportion of Fiber Reinforced Concrete depends on: _____.
- a) Type of fibers used b) Desired properties
c) Design requirements d) All of the above
- 17) Which of the following mechanical properties is NOT typically associated with ferrocement?
- a) High tensile strength b) Low elasticity
c) High compressive strength d) High ductility
- 18) What is the main chemical component of silica fume?
- a) Silicon dioxide (SiO₂) b) Calcium oxide (CaO)
c) Aluminum oxide (Al₂O₃) d) Magnesium oxide (MgO)
- 19) In ferrocement design, what parameter is typically optimized for minimizing cracking?
- a) Cement content b) Water-cement ratio
c) Aggregate size d) Reinforcement spacing

- 20)** Which of the following is a classification of polymer concrete based on the type of polymer used?
- a) Epoxy polymer concrete
 - b) Polyester polymer concrete
 - c) Acrylic polymer concrete
 - d) All of the above

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Concrete composites (BTN01810)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required and state it clearly.

Section – I

- Q.2 Solve any two.** **16**
- Explains the behavior of fiber reinforced concrete under the compression, tension and flexure.
 - What is mean by Fiber Reinforced Concrete. Explain the different types of Fibers used for construction of Fiber Reinforced Concrete.
 - Explains the factors affecting the properties of Fiber Reinforced Concrete.
- Q.3 Solve any four.** **24**
- Explains the mechanical properties of Ferro cement?
 - Explain the materials used in Ferro cement.
 - What are the applications of Ferrocement.
 - Explains the merits of Ferro cement as a structural material?
 - Explain the properties of freshly mixed fiber reinforced concrete.
 - What is workability of Concrete? Explain the methods of measurement of workability.

Section – II

- Q.4 Solve any two.** **16**
- Explain the physical and mechanical properties of Silica Fume Concrete with respect to durability of concrete.
 - State the applications of Silica Fume Concrete.
 - Explain the reaction mechanism of Silica Fume Concrete.
- Q.5 Solve any four.** **24**
- Write note on types of polymer concrete.
 - Explain properties of constituent materials of Polymer Concrete.
 - Explain different physical and chemical properties of Silica Fumes.
 - What are the applications of polymer impregnated concrete and polymer concrete?
 - What is high performance concrete? Explain the properties of high-performance concrete.
 - What are the design consideration for High performance concrete?

Seat No.	
-------------	--

Set

P

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) Which factor is NOT considered in the environmental impact assessment of rural road projects?

a) Soil erosion	b) Air pollution
c) Noise pollution	d) Population growth
- 2) Which agency is typically responsible for the maintenance of rural roads?

a) Municipalities	b) National highway authority
c) Rural development authority	d) Local communities
- 3) Which technique is used for strengthening the subgrade of rural roads?

a) Geotextiles	b) Compaction
c) Stabilization	d) Reinforcement
- 4) In geometric design, what does the "grade" refer to?

a) The width of the roadway	b) The slope of the roadway
c) The curvature of the roadway	d) The alignment of the roadway
- 5) Which geometric design element ensures that drivers have adequate visibility of the road ahead?

a) Sight distance	b) Super-elevation
c) Horizontal curve	d) Vertical curve
- 6) What is the primary purpose of a vertical curve in geometric design?

a) To provide a transition between different grades
b) To control the alignment of the roadway
c) To increase the super-elevation on curves
d) To accommodate pedestrian crossings
- 7) Cobblestone pavements are characterized by:

a) High maintenance requirements
b) Low initial cost
c) Smooth surface
d) Rapid construction
- 8) Which of the following materials is commonly used as a sub-base in rural road pavements?

a) Sand	b) Gravel
c) Concrete	d) Bitumen

- 9) Which type of material is suitable for stabilizing weak subgrade soils in rural road construction?
- Geotextiles
 - Fly ash
 - Lime
 - Asphalt emulsion
- 10) Which type of pavement material is commonly used in rural roads due to its availability and cost-effectiveness?
- Concrete
 - Asphalt
 - Brick
 - Gravel
- 11) What is the purpose of providing drainage in pavement design for rural roads?
- To reduce noise pollution
 - To prevent erosion
 - To enhance aesthetics
 - To improve ride comfort
- 12) Which method is commonly used for pavement thickness design in rural roads?
- American Association of State Highway and Transportation Officials (AASHTO) method
 - Mechanistic-Empirical (ME) method
 - British Standards (BS) method
 - Asphalt Institute method
- 13) Which factor is NOT considered in the AASHTO pavement design method?
- Traffic load
 - Soil bearing capacity
 - Climate conditions
 - Pavement material availability
- 14) Which layer of a typical rural road construction provides structural support and distributes traffic loads?
- Subgrade
 - Base course
 - Sub-base
 - Surface course
- 15) What is the purpose of compaction during road construction?
- To increase construction cost
 - To reduce the road's strength
 - To improve soil stability and density
 - To accelerate road degradation
- 16) Which of the following factors does NOT influence the choice of road pavement thickness in rural areas?
- Soil type
 - Traffic load
 - Roadside vegetation
 - Climate conditions
- 17) Which type of drainage is essential to prevent waterlogging and prolong the lifespan of rural roads?
- Surface drainage
 - Subsurface drainage
 - Vegetative drainage
 - Atmospheric drainage
- 18) Which of the following is a common maintenance activity for rural roads?
- Painting murals on road surfaces
 - Installing solar panels along the roadside
 - Filling potholes
 - Erecting statues along the roadside

- 19)** What is the purpose of routine maintenance of rural roads?
- a) To increase traffic congestion
 - b) To decrease road safety
 - c) To extend the lifespan of the road
 - d) To promote environmental degradation
- 20)** Which of the following materials is commonly used for road surfacing in rural areas?
- a) Glass
 - b) Rubber
 - c) Asphalt
 - d) Plastic

Seat No.	
-------------	--

Set **P**

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

Section – I

Q.2 Solve following. (Any 2)

- | | | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| a) | Explain Recent developments on rural roads in India. | 10 |
| b) | Explain the concept of 'Network Planning in Rural Roads'. | 10 |
| c) | 4-Lane expressway having design speed of 120 kmph and radius of 250 m and passing through plain and rolling terrain. Calculate length of transition curve for the cases:- | 10 |
| | 1) Rate of change of centrifugal acceleration. | |
| | 2) Rate of change of super-elevation. | |

Q.3 Solve following. (Any 2)

- | | | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| a) | Explain location surveys for rural roads. | 10 |
| b) | Explain Survey for marginal materials and aggregates/ low grade materials, artificial aggregates, waste materials, new materials and stabilizers. | 10 |
| c) | Explain the concept of Special Pavement in detail. | 10 |

Section – II

Q.4 Solve following. (Any 2)

- | | | |
|-----------|----------------------------------------------------------------------------------|-----------|
| a) | What are the various pavement components Design of flexible pavement as per IRC. | 10 |
| b) | Explain the design of semi-rigid pavement in detail in rural roads. | 10 |
| c) | Explain Construction of roller compacted concrete. | 10 |

Q.5 Solve following. (Any 2)

- | | | |
|-----------|------------------------------------------------------------------|-----------|
| a) | Explain Specifications and tests for quality control as per IRC. | 10 |
| b) | Explain maintenance of special pavements. | 10 |
| c) | Explain the concept of 'Rehabilitation'. | 10 |

Seat No.	
-------------	--

Set **Q**

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) What is the primary purpose of a vertical curve in geometric design?
 - a) To provide a transition between different grades
 - b) To control the alignment of the roadway
 - c) To increase the super-elevation on curves
 - d) To accommodate pedestrian crossings
- 2) Cobblestone pavements are characterized by:
 - a) High maintenance requirements
 - b) Low initial cost
 - c) Smooth surface
 - d) Rapid construction
- 3) Which of the following materials is commonly used as a sub-base in rural road pavements?

a) Sand	b) Gravel
c) Concrete	d) Bitumen
- 4) Which type of material is suitable for stabilizing weak subgrade soils in rural road construction?

a) Geotextiles	b) Fly ash
c) Lime	d) Asphalt emulsion
- 5) Which type of pavement material is commonly used in rural roads due to its availability and cost-effectiveness?

a) Concrete	b) Asphalt
c) Brick	d) Gravel
- 6) What is the purpose of providing drainage in pavement design for rural roads?

a) To reduce noise pollution	b) To prevent erosion
c) To enhance aesthetics	d) To improve ride comfort
- 7) Which method is commonly used for pavement thickness design in rural roads?
 - a) American Association of State Highway and Transportation Officials (AASHTO) method
 - b) Mechanistic-Empirical (ME) method
 - c) British Standards (BS) method
 - d) Asphalt Institute method

- 19)** In geometric design, what does the "grade" refer to?
- a) The width of the roadway
 - b) The slope of the roadway
 - c) The curvature of the roadway
 - d) The alignment of the roadway
- 20)** Which geometric design element ensures that drivers have adequate visibility of the road ahead?
- a) Sight distance
 - b) Super-elevation
 - c) Horizontal curve
 - d) Vertical curve

Seat No.	
-----------------	--

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
2) Assume suitable data wherever needed & mention it clearly.
3) Draw neat sketches wherever necessary.

Section – I

Q.2 Solve following. (Any 2)

- a) Explain Recent developments on rural roads in India. **10**
b) Explain the concept of 'Network Planning in Rural Roads'. **10**
c) 4-Lane expressway having design speed of 120 kmph and radius of 250 m **10**
and passing through plain and rolling terrain. Calculate length of transition curve for the cases:-
1) Rate of change of centrifugal acceleration.
2) Rate of change of super-elevation.

Q.3 Solve following. (Any 2)

- a) Explain location surveys for rural roads. **10**
b) Explain Survey for marginal materials and aggregates/ low grade **10**
materials, artificial aggregates, waste materials, new materials and stabilizers.
c) Explain the concept of Special Pavement in detail. **10**

Section – II

Q.4 Solve following. (Any 2)

- a) What are the various pavement components Design of flexible pavement **10**
as per IRC.
b) Explain the design of semi-rigid pavement in detail in rural roads. **10**
c) Explain Construction of roller compacted concrete. **10**

Q.5 Solve following. (Any 2)

- a) Explain Specifications and tests for quality control as per IRC. **10**
b) Explain maintenance of special pavements. **10**
c) Explain the concept of 'Rehabilitation'. **10**

Seat No.	
----------	--

Set **R**

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) What is the purpose of providing drainage in pavement design for rural roads?
 - a) To reduce noise pollution
 - b) To prevent erosion
 - c) To enhance aesthetics
 - d) To improve ride comfort
- 2) Which method is commonly used for pavement thickness design in rural roads?
 - a) American Association of State Highway and Transportation Officials (AASHTO) method
 - b) Mechanistic-Empirical (ME) method
 - c) British Standards (BS) method
 - d) Asphalt Institute method
- 3) Which factor is NOT considered in the AASHTO pavement design method?
 - a) Traffic load
 - b) Soil bearing capacity
 - c) Climate conditions
 - d) Pavement material availability
- 4) Which layer of a typical rural road construction provides structural support and distributes traffic loads?
 - a) Subgrade
 - b) Base course
 - c) Sub-base
 - d) Surface course
- 5) What is the purpose of compaction during road construction?
 - a) To increase construction cost
 - b) To reduce the road's strength
 - c) To improve soil stability and density
 - d) To accelerate road degradation
- 6) Which of the following factors does NOT influence the choice of road pavement thickness in rural areas?
 - a) Soil type
 - b) Traffic load
 - c) Roadside vegetation
 - d) Climate conditions
- 7) Which type of drainage is essential to prevent waterlogging and prolong the lifespan of rural roads?
 - a) Surface drainage
 - b) Subsurface drainage
 - c) Vegetative drainage
 - d) Atmospheric drainage

- 8) Which of the following is a common maintenance activity for rural roads?
- a) Painting murals on road surfaces
 - b) Installing solar panels along the roadside
 - c) Filling potholes
 - d) Erecting statues along the roadside
- 9) What is the purpose of routine maintenance of rural roads?
- a) To increase traffic congestion
 - b) To decrease road safety
 - c) To extend the lifespan of the road
 - d) To promote environmental degradation
- 10) Which of the following materials is commonly used for road surfacing in rural areas?
- a) Glass
 - b) Rubber
 - c) Asphalt
 - d) Plastic
- 11) Which factor is NOT considered in the environmental impact assessment of rural road projects?
- a) Soil erosion
 - b) Air pollution
 - c) Noise pollution
 - d) Population growth
- 12) Which agency is typically responsible for the maintenance of rural roads?
- a) Municipalities
 - b) National highway authority
 - c) Rural development authority
 - d) Local communities
- 13) Which technique is used for strengthening the subgrade of rural roads?
- a) Geotextiles
 - b) Compaction
 - c) Stabilization
 - d) Reinforcement
- 14) In geometric design, what does the "grade" refer to?
- a) The width of the roadway
 - b) The slope of the roadway
 - c) The curvature of the roadway
 - d) The alignment of the roadway
- 15) Which geometric design element ensures that drivers have adequate visibility of the road ahead?
- a) Sight distance
 - b) Super-elevation
 - c) Horizontal curve
 - d) Vertical curve
- 16) What is the primary purpose of a vertical curve in geometric design?
- a) To provide a transition between different grades
 - b) To control the alignment of the roadway
 - c) To increase the super-elevation on curves
 - d) To accommodate pedestrian crossings
- 17) Cobblestone pavements are characterized by:
- a) High maintenance requirements
 - b) Low initial cost
 - c) Smooth surface
 - d) Rapid construction
- 18) Which of the following materials is commonly used as a sub-base in rural road pavements?
- a) Sand
 - b) Gravel
 - c) Concrete
 - d) Bitumen

- 19)** Which type of material is suitable for stabilizing weak subgrade soils in rural road construction?
- a) Geotextiles
 - b) Fly ash
 - c) Lime
 - d) Asphalt emulsion
- 20)** Which type of pavement material is commonly used in rural roads due to its availability and cost-effectiveness?
- a) Concrete
 - b) Asphalt
 - c) Brick
 - d) Gravel

Seat No.	
----------	--

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

Section – I

Q.2 Solve following. (Any 2)

- | | | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| a) | Explain Recent developments on rural roads in India. | 10 |
| b) | Explain the concept of 'Network Planning in Rural Roads'. | 10 |
| c) | 4-Lane expressway having design speed of 120 kmph and radius of 250 m and passing through plain and rolling terrain. Calculate length of transition curve for the cases:- | 10 |
| | 1) Rate of change of centrifugal acceleration. | |
| | 2) Rate of change of super-elevation. | |

Q.3 Solve following. (Any 2)

- | | | |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| a) | Explain location surveys for rural roads. | 10 |
| b) | Explain Survey for marginal materials and aggregates/ low grade materials, artificial aggregates, waste materials, new materials and stabilizers. | 10 |
| c) | Explain the concept of Special Pavement in detail. | 10 |

Section – II

Q.4 Solve following. (Any 2)

- | | | |
|-----------|----------------------------------------------------------------------------------|-----------|
| a) | What are the various pavement components Design of flexible pavement as per IRC. | 10 |
| b) | Explain the design of semi-rigid pavement in detail in rural roads. | 10 |
| c) | Explain Construction of roller compacted concrete. | 10 |

Q.5 Solve following. (Any 2)

- | | | |
|-----------|------------------------------------------------------------------|-----------|
| a) | Explain Specifications and tests for quality control as per IRC. | 10 |
| b) | Explain maintenance of special pavements. | 10 |
| c) | Explain the concept of 'Rehabilitation'. | 10 |

Seat No.	
-------------	--

Set **S**

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 20

Q.1 Choose the correct alternatives from the options.

20

- 1) Which of the following factors does NOT influence the choice of road pavement thickness in rural areas?
 - a) Soil type
 - b) Traffic load
 - c) Roadside vegetation
 - d) Climate conditions
- 2) Which type of drainage is essential to prevent waterlogging and prolong the lifespan of rural roads?
 - a) Surface drainage
 - b) Subsurface drainage
 - c) Vegetative drainage
 - d) Atmospheric drainage
- 3) Which of the following is a common maintenance activity for rural roads?
 - a) Painting murals on road surfaces
 - b) Installing solar panels along the roadside
 - c) Filling potholes
 - d) Erecting statues along the roadside
- 4) What is the purpose of routine maintenance of rural roads?
 - a) To increase traffic congestion
 - b) To decrease road safety
 - c) To extend the lifespan of the road
 - d) To promote environmental degradation
- 5) Which of the following materials is commonly used for road surfacing in rural areas?
 - a) Glass
 - b) Rubber
 - c) Asphalt
 - d) Plastic
- 6) Which factor is NOT considered in the environmental impact assessment of rural road projects?
 - a) Soil erosion
 - b) Air pollution
 - c) Noise pollution
 - d) Population growth
- 7) Which agency is typically responsible for the maintenance of rural roads?
 - a) Municipalities
 - b) National highway authority
 - c) Rural development authority
 - d) Local communities
- 8) Which technique is used for strengthening the subgrade of rural roads?
 - a) Geotextiles
 - b) Compaction
 - c) Stabilization
 - d) Reinforcement

- 9) In geometric design, what does the "grade" refer to?
- a) The width of the roadway b) The slope of the roadway
c) The curvature of the roadway d) The alignment of the roadway
- 10) Which geometric design element ensures that drivers have adequate visibility of the road ahead?
- a) Sight distance b) Super-elevation
c) Horizontal curve d) Vertical curve
- 11) What is the primary purpose of a vertical curve in geometric design?
- a) To provide a transition between different grades
b) To control the alignment of the roadway
c) To increase the super-elevation on curves
d) To accommodate pedestrian crossings
- 12) Cobblestone pavements are characterized by:
- a) High maintenance requirements
b) Low initial cost
c) Smooth surface
d) Rapid construction
- 13) Which of the following materials is commonly used as a sub-base in rural road pavements?
- a) Sand b) Gravel
c) Concrete d) Bitumen
- 14) Which type of material is suitable for stabilizing weak subgrade soils in rural road construction?
- a) Geotextiles b) Fly ash
c) Lime d) Asphalt emulsion
- 15) Which type of pavement material is commonly used in rural roads due to its availability and cost-effectiveness?
- a) Concrete b) Asphalt
c) Brick d) Gravel
- 16) What is the purpose of providing drainage in pavement design for rural roads?
- a) To reduce noise pollution b) To prevent erosion
c) To enhance aesthetics d) To improve ride comfort
- 17) Which method is commonly used for pavement thickness design in rural roads?
- a) American Association of State Highway and Transportation Officials (AASHTO) method
b) Mechanistic-Empirical (ME) method
c) British Standards (BS) method
d) Asphalt Institute method
- 18) Which factor is NOT considered in the AASHTO pavement design method?
- a) Traffic load b) Soil bearing capacity
c) Climate conditions d) Pavement material availability
- 19) Which layer of a typical rural road construction provides structural support and distributes traffic loads?
- a) Subgrade b) Base course
c) Sub-base d) Surface course

- 20)** What is the purpose of compaction during road construction?
- a) To increase construction cost
 - b) To reduce the road's strength
 - c) To improve soil stability and density
 - d) To accelerate road degradation

Seat No.	
----------	--

Set **S**

Fouth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Rural Roads (BTN01812)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.
 2) Assume suitable data wherever needed & mention it clearly.
 3) Draw neat sketches wherever necessary.

Section – I

Q.2 Solve following. (Any 2)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| a) Explain Recent developments on rural roads in India. | 10 |
| b) Explain the concept of 'Network Planning in Rural Roads'. | 10 |
| c) 4-Lane expressway having design speed of 120 kmph and radius of 250 m and passing through plain and rolling terrain. Calculate length of transition curve for the cases:- | 10 |
| 1) Rate of change of centrifugal acceleration. | |
| 2) Rate of change of super-elevation. | |

Q.3 Solve following. (Any 2)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| a) Explain location surveys for rural roads. | 10 |
| b) Explain Survey for marginal materials and aggregates/ low grade materials, artificial aggregates, waste materials, new materials and stabilizers. | 10 |
| c) Explain the concept of Special Pavement in detail. | 10 |

Section – II

Q.4 Solve following. (Any 2)

- | | |
|-------------------------------------------------------------------------------------|-----------|
| a) What are the various pavement components Design of flexible pavement as per IRC. | 10 |
| b) Explain the design of semi-rigid pavement in detail in rural roads. | 10 |
| c) Explain Construction of roller compacted concrete. | 10 |

Q.5 Solve following. (Any 2)

- | | |
|---------------------------------------------------------------------|-----------|
| a) Explain Specifications and tests for quality control as per IRC. | 10 |
| b) Explain maintenance of special pavements. | 10 |
| c) Explain the concept of 'Rehabilitation'. | 10 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct answer:

20

- 1) KAIZEN Means _____.
 - a) Quality improvement Technique
 - b) Change to become good
 - c) Achieving Quality
 - d) None
- 2) Total quality costs include: _____.

a) Prevention costs	b) Appraisal costs
c) Failure costs	d) All of the given options
- 3) MIS structure is based on _____.

a) Management Activity	b) Population
c) Both (a) and (b)	d) None
- 4) The objective of ISO-9000 family of Quality management is _____.

a) Customer satisfaction	b) Employee satisfaction
c) Skill enhancement	d) Environmental issues
- 5) Internal information for MIS may come from any one of the following departments _____.

a) Customers care department	b) HR department
c) Marketing department	d) Production department
- 6) _____ is not a process tools for TQM systems.

a) process flow analysis	b) histograms
c) Plier	d) control charts
- 7) TQM & ISO both focuses on _____.

a) Customer	b) Employee
c) Supplier	d) All of the above
- 8) ISO 9000 seeks standardization in terms of _____.

a) products	b) production procedures
c) suppliers specifications	d) procedures to manage quality

- 9) The person who ensures that systems are developed on time, within budget, and with acceptable quality is a _____.
- a) systems designer b) project manager
c) systems owner d) systems builder
- 10) Internal information for MIS may come from any one of the following department _____.
- a) Customers care department b) HR department
c) Marketing department d) Production department
- 11) An _____ is a set of processes and procedures that transform data into information and knowledge.
- a) information system b) Knowledge system
c) Database system d) Computer system
- 12) The focal point of all quality control should be: _____
- a) Price focus b) Cost Focus
c) Customer Focus d) Manufacturing Focus
- 13) A company wants to measure the length of a fan as a part of its quality control exercise. The type of data collected will be:
- a) Variable b) Attribute
c) Cannot be determined d) None of the above
- 14) _____ are used in six sigma.
- a) black belt b) green belt
c) both black belt and green belt d) None of the above
- 15) _____ is any business-related exchange such as payments to employees, sales to customers, or payments to suppliers.
- a) Data b) E-commerce
c) A transaction d) Input
- 16) In a company _____ is the centre which consists of all processing activities.
- a) Data b) Production
c) Information d) Sale
- 17) _____ models to analysis a problem and provides possible solution for management evaluation.
- a) Decision b) Standard
c) Structural d) Periodic
- 18) _____ is a standard that companies compare themselves to and strive to be that good.
- a) Production b) Benchmarking
c) Structuring d) Formatting
- 19) Meaning of 'Seiri' IN 5s technique is _____.
- a) Short b) Shine
c) Structured d) Straighten
- 20) Basically, _____ is raw material that is to be processed, while _____ is the processed data.
- a) information, data b) data, information
c) format, detailing d) goods, services

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

Instructions: 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

Q.2 Attempt any four questions. 40

- a) What is “Kaizen”? Explain with 7-key concepts & 5s Methodology.
- b) What are the factors affecting the poor quality and Construction?
- c) Differentiate between Quality Control and Quality Assurance.
- d) Give Measures to overcome the responsible causes for poor quality of construction.
- e) What Is Checklist? Enlist it for “Concreting”, “Formwork” & “RCC Steelwork”
- f) Explain all 8 Principles of Quality Management.

Section – II

Q.3 Attempt any four question 40

- a) Define data and information. What are the major differences between them? Explain with the help of suitable Example.
- b) What data information is required for planning of new road corridor between two megacities?
- c) Explain the use of MIS in field of construction industry.
- d) Explain Decision Support System with ‘purpose’ & ‘components’.
- e) Elaborate ‘ERP’ with benefits, limitation & ERP module with diagrammatical explanation.
- f) What is ‘Information System’? Explain with its Classification & processing.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct answer:

20

- 1) _____ is not a process tools for TQM systems.

a) process flow analysis	b) histograms
c) Plier	d) control charts
- 2) TQM & ISO both focuses on _____.

a) Customer	b) Employee
c) Supplier	d) All of the above
- 3) ISO 9000 seeks standardization in terms of _____.

a) products	b) production procedures
c) suppliers specifications	d) procedures to manage quality
- 4) The person who ensures that systems are developed on time, within budget, and with acceptable quality is a _____.

a) systems designer	b) project manager
c) systems owner	d) systems builder
- 5) Internal information for MIS may come from any one of the following department _____.

a) Customers care department	b) HR department
c) Marketing department	d) Production department
- 6) An _____ is a set of processes and procedures that transform data into information and knowledge.

a) information system	b) Knowledge system
c) Database system	d) Computer system
- 7) The focal point of all quality control should be: _____.

a) Price focus	b) Cost Focus
c) Customer Focus	d) Manufacturing Focus
- 8) A company wants to measure the length of a fan as a part of its quality control exercise. The type of data collected will be:

a) Variable	b) Attribute
c) Cannot be determined	d) None of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

Instructions: 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

Q.2 Attempt any four questions. 40

- a) What is “Kaizen”? Explain with 7-key concepts & 5s Methodology.
- b) What are the factors affecting the poor quality and Construction?
- c) Differentiate between Quality Control and Quality Assurance.
- d) Give Measures to overcome the responsible causes for poor quality of construction.
- e) What Is Checklist? Enlist it for “Concreting”, “Formwork” & “RCC Steelwork”
- f) Explain all 8 Principles of Quality Management.

Section – II

Q.3 Attempt any four question 40

- a) Define data and information. What are the major differences between them? Explain with the help of suitable Example.
- b) What data information is required for planning of new road corridor between two megacities?
- c) Explain the use of MIS in field of construction industry.
- d) Explain Decision Support System with ‘purpose’ & ‘components’.
- e) Elaborate ‘ERP’ with benefits, limitation & ERP module with diagrammatical explanation.
- f) What is ‘Information System’? Explain with its Classification & processing.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct answer:

20

- 1) An _____ is a set of processes and procedures that transform data into information and knowledge.

a) information system	b) Knowledge system
c) Database system	d) Computer system
- 2) The focal point of all quality control should be: _____

a) Price focus	b) Cost Focus
c) Customer Focus	d) Manufacturing Focus
- 3) A company wants to measure the length of a fan as a part of its quality control exercise. The type of data collected will be:

a) Variable	b) Attribute
c) Cannot be determined	d) None of the above
- 4) _____ are used in six sigma.

a) black belt	b) green belt
c) both black belt and green belt	d) None of the above
- 5) _____ is any business-related exchange such as payments to employees, sales to customers, or payments to suppliers.

a) Data	b) E-commerce
c) A transaction	d) Input
- 6) In a company _____ is the centre which consists of all processing activities.

a) Data	b) Production
c) Information	d) Sale
- 7) _____ models to analysis a problem and provides possible solution for management evaluation.

a) Decision	b) Standard
c) Structural	d) Periodic
- 8) _____ is a standard that companies compare themselves to and strive to be that good.

a) Production	b) Benchmarking
c) Structuring	d) Formatting

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

Instructions: 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

Q.2 Attempt any four questions. 40

- a) What is “Kaizen”? Explain with 7-key concepts & 5s Methodology.
- b) What are the factors affecting the poor quality and Construction?
- c) Differentiate between Quality Control and Quality Assurance.
- d) Give Measures to overcome the responsible causes for poor quality of construction.
- e) What Is Checklist? Enlist it for “Concreting”, “Formwork” & “RCC Steelwork”
- f) Explain all 8 Principles of Quality Management.

Section – II

Q.3 Attempt any four question 40

- a) Define data and information. What are the major differences between them? Explain with the help of suitable Example.
- b) What data information is required for planning of new road corridor between two megacities?
- c) Explain the use of MIS in field of construction industry.
- d) Explain Decision Support System with ‘purpose’ & ‘components’.
- e) Elaborate ‘ERP’ with benefits, limitation & ERP module with diagrammatical explanation.
- f) What is ‘Information System’? Explain with its Classification & processing.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct answer: 20

- 1) In a company _____ is the centre which consists of all processing activities.

a) Data	b) Production
c) Information	d) Sale
- 2) _____ models to analysis a problem and provides possible solution for management evaluation.

a) Decision	b) Standard
c) Structural	d) Periodic
- 3) _____ is a standard that companies compare themselves to and strive to be that good.

a) Production	b) Benchmarking
c) Structuring	d) Formatting
- 4) Meaning of 'Seiri' IN 5s technique is _____.

a) Short	b) Shine
c) Structured	d) Straighten
- 5) Basically, _____ is raw material that is to be processed, while _____ is the processed data.

a) information, data	b) data, information
c) format, detailing	d) goods, services
- 6) KAIZEN Means _____.

a) Quality improvement Technique
b) Change to become good
c) Achieving Quality
d) None
- 7) Total quality costs include: _____.

a) Prevention costs	b) Appraisal costs
c) Failure costs	d) All of the given options
- 8) MIS structure is based on _____.

a) Management Activity	b) Population
c) Both (a) and (b)	d) None

- 9) The objective of ISO-9000 family of Quality management is _____.
a) Customer satisfaction b) Employee satisfaction
c) Skill enhancement d) Environmental issues
- 10) Internal information for MIS may come from any one of the following departments _____.
a) Customers care department b) HR department
c) Marketing department d) Production department
- 11) _____ is not a process tools for TQM systems.
a) process flow analysis b) histograms
c) Plier d) control charts
- 12) TQM & ISO both focuses on _____.
a) Customer b) Employee
c) Supplier d) All of the above
- 13) ISO 9000 seeks standardization in terms of _____.
a) products b) production procedures
c) suppliers specifications d) procedures to manage quality
- 14) The person who ensures that systems are developed on time, within budget, and with acceptable quality is a _____.
a) systems designer b) project manager
c) systems owner d) systems builder
- 15) Internal information for MIS may come from any one of the following department _____.
a) Customers care department b) HR department
c) Marketing department d) Production department
- 16) An _____ is a set of processes and procedures that transform data into information and knowledge.
a) information system b) Knowledge system
c) Database system d) Computer system
- 17) The focal point of all quality control should be: _____.
a) Price focus b) Cost Focus
c) Customer Focus d) Manufacturing Focus
- 18) A company wants to measure the length of a fan as a part of its quality control exercise. The type of data collected will be:
a) Variable b) Attribute
c) Cannot be determined d) None of the above
- 19) _____ are used in six sigma.
a) black belt b) green belt
c) both black belt and green belt d) None of the above
- 20) _____ is any business-related exchange such as payments to employees, sales to customers, or payments to suppliers.
a) Data b) E-commerce
c) A transaction d) Input

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

TQM and MIS in Civil Engineering (BTN01813)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

Instructions: 1) All questions are compulsory.
2) Figure to the right indicate full marks.

Section – I

Q.2 Attempt any four questions. 40

- What is “Kaizen”? Explain with 7-key concepts & 5s Methodology.
- What are the factors affecting the poor quality and Construction?
- Differentiate between Quality Control and Quality Assurance.
- Give Measures to overcome the responsible causes for poor quality of construction.
- What Is Checklist? Enlist it for “Concreting”, “Formwork” & “RCC Steelwork”
- Explain all 8 Principles of Quality Management.

Section – II

Q.3 Attempt any four question 40

- Define data and information. What are the major differences between them? Explain with the help of suitable Example.
- What data information is required for planning of new road corridor between two megacities?
- Explain the use of MIS in field of construction industry.
- Explain Decision Support System with ‘purpose’ & ‘components’.
- Elaborate ‘ERP’ with benefits, limitation & ERP module with diagrammatical explanation.
- What is ‘Information System’? Explain with its Classification & processing.

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Semester - II) (New) (CBCS) Examination:
March/April-2024**

CIVIL ENGINEERING

Planning for Sustainable Development (BTN01814)

Day & Date: Monday, 13-05-2024

Max. Marks: 100

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Question no. 1 is compulsory in section - I, and solve any four questions from the remaining.
 - 2) Question no. 7 is compulsory in section II, and solve any four questions from the remaining.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- | | | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.1 | Examine how do environmental, social, and economic factors intersect within the concept of sustainable development? | 10 |
| Q.2 | Provide any five examples of sustainable development initiatives or projects in different parts of the world? | 10 |
| Q.3 | Explain how has globalization impacted the discourse on sustainability, and how have international organizations and agreements shaped sustainability goals and priorities? | 10 |
| Q.4 | What are the key principles behind sustainable development, and how do they guide the formulation of strategies for promoting sustainability? | 10 |
| Q.5 | What are the social and economic implications of biodiversity loss and ecosystem degradation, and how can we integrate conservation efforts into sustainable development strategies? | 10 |
| Q.6 | Discuss any five challenges, and any five opportunities associated with adopting renewable energy solutions, such as solar, wind, and hydroelectric power, in industries and communities? | 10 |

Section – II

- | | | |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.7 | Enumerate five examples of grassroots movements and community-led initiatives that have catalyzed societal change towards sustainability? | 10 |
| Q.8 | Examine how does urbanization and urban planning influence societal transformations towards sustainable living, including issues such as transportation, housing, and infrastructure? | 10 |
| Q.9 | Describe any five key concepts of institutional theory and how they apply to sustainability? | 10 |
| Q.10 | Examine how does transparency, accountability, and integrity in governance practices contribute to promoting sustainability and building trust among stakeholders? | 10 |

- Q.11** Provide any five examples of successful Indian policy initiatives that have effectively reduced environmental degradation and promoted conservation and sustainability? **10**
- Q.12** Discuss any five key components of a sustainable capacity development strategy for fostering innovation within organizations and communities? **10**

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (197042806)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Maintaining prestressed concrete structures of various types in a fit and serviceable condition is primary function of _____.
a) Maintenance engineer b) Design engineer
c) Structural engineer d) Architect
- 2) Honey combing in concrete is caused due to _____.
a) Inadequate compaction b) Chemical reaction
c) Shock waves d) Lack of curing
- 3) Bacterial concrete is a _____ concrete.
a) porous b) self-healing
c) foamed d) vacuum
- 4) The pH value of fresh concrete is around _____.
a) 10 b) 9
c) 8 d) 12.5
- 5) _____ is the main reason for crack generation in concrete.
a) movement of humidity b) sleep
c) difference in temperature d) All of the above
- 6) _____ is not used in the underpinning work.
a) heating method b) frizzing method
c) pit method d) All of the above
- 7) _____ metal is used for making a foamed concrete.
a) Aluminum b) Zinc
c) a & b both d) None of the above
- 8) One of the testing equipment used for inspection of bridge structure is _____.
a) Strain Gauge b) Measuring Jar
c) Test Tubes d) None of these
- 9) _____ is the process in which we cover the structural members of a building to increase the strength of the building.
a) Jacketing b) Shoring
c) Scaffolding d) Demolition

- 10) _____ is a similar phenomenon to explosion but the pieces collapse into the center of the object instead of being expelled.
- a) Explosion
 - b) An implosion
 - c) Both a and b
 - d) None of the above
- 11) Remove a whole building or part of building in control way is known as _____.
- a) restoration
 - b) demolition
 - c) retrofitting
 - d) maintenance
- 12) _____ equipment used for starting the explosion in explosive material.
- a) Detonators
 - b) Starting cap
 - c) Current switch
 - d) None of the above
- 13) _____ factor does not affect the quantity of the explosive material.
- a) Column size
 - b) Column shape
 - c) Size of demolition
 - d) Depth of the hole
- 14) _____ involves strengthening a building structure to better withstand seismic activity such as earthquake.
- a) Seismic retrofitting
 - b) Plastering
 - c) Shuttering
 - d) Honeycombing

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (197042806)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any One. 10

- a) Explain bacterial concrete / self-healing concrete and vacuum concrete.
- b) Explain assessment procedures for inspection and evaluating a damaged structure.

Q.3 Solve any Two. 18

- a) Explain with sketches Shoring and Underpinning.
- b) Discuss in detail maintenance of structure.
- c) Discuss Shotcrete and Guniting as repair techniques.
- d) Explain the various causes for deterioration of concrete structures.

Section – II

Q.4 Solve any One. 10

- a) Explain in detail repairs of marine structures.
- b) Demolition techniques used for dilapidated buildings.

Q.5 Solve any Two. 18

- a) Explain techniques used in repairs for leakages in R.C. slab.
- b) Discuss in detail structural health monitoring.
- c) Explain with sketches retrofitting and jacketing method used in repairs of beams and columns.
- d) Explain with example use of sensors in structures.

- 10) Bacterial concrete is a _____ concrete.
- a) porous
 - b) self-healing
 - c) foamed
 - d) vacuum
- 11) The pH value of fresh concrete is around _____.
- a) 10
 - b) 9
 - c) 8
 - d) 12.5
- 12) _____ is the main reason for crack generation in concrete.
- a) movement of humidity
 - b) sleep
 - c) difference in temperature
 - d) All of the above
- 13) _____ is not used in the underpinning work.
- a) heating method
 - b) frizzing method
 - c) pit method
 - d) All of the above
- 14) _____ metal is used for making a foamed concrete.
- a) Aluminum
 - b) Zinc
 - c) a & b both
 - d) None of the above

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (197042806)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any One. 10

- a) Explain bacterial concrete / self-healing concrete and vacuum concrete.
- b) Explain assessment procedures for inspection and evaluating a damaged structure.

Q.3 Solve any Two. 18

- a) Explain with sketches Shoring and Underpinning.
- b) Discuss in detail maintenance of structure.
- c) Discuss Shotcrete and Guniting as repair techniques.
- d) Explain the various causes for deterioration of concrete structures.

Section – II

Q.4 Solve any One. 10

- a) Explain in detail repairs of marine structures.
- b) Demolition techniques used for dilapidated buildings.

Q.5 Solve any Two. 18

- a) Explain techniques used in repairs for leakages in R.C. slab.
- b) Discuss in detail structural health monitoring.
- c) Explain with sketches retrofitting and jacketing method used in repairs of beams and columns.
- d) Explain with example use of sensors in structures.

- 10) _____ is not used in the underpinning work.
a) heating method b) frizzing method
c) pit method d) All of the above
- 11) _____ metal is used for making a foamed concrete.
a) Aluminum b) Zinc
c) a & b both d) None of the above
- 12) One of the testing equipment used for inspection of bridge structure is _____.
a) Strain Gauge b) Measuring Jar
c) Test Tubes d) None of these
- 13) _____ is the process in which we cover the structural members of a building to increase the strength of the building.
a) Jacketing b) Shoring
c) Scaffolding d) Demolition
- 14) _____ is a similar phenomenon to explosion but the pieces collapse into the center of the object instead of being expelled.
a) Explosion b) An implosion
c) Both a and b d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Repairs & Rehabilitation of Structures (197042806)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any One.** **10**
- a) Explain bacterial concrete / self-healing concrete and vacuum concrete.
 - b) Explain assessment procedures for inspection and evaluating a damaged structure.
- Q.3 Solve any Two.** **18**
- a) Explain with sketches Shoring and Underpinning.
 - b) Discuss in detail maintenance of structure.
 - c) Discuss Shotcrete and Guniting as repair techniques.
 - d) Explain the various causes for deterioration of concrete structures.

Section – II

- Q.4 Solve any One.** **10**
- a) Explain in detail repairs of marine structures.
 - b) Demolition techniques used for dilapidated buildings.
- Q.5 Solve any Two.** **18**
- a) Explain techniques used in repairs for leakages in R.C. slab.
 - b) Discuss in detail structural health monitoring.
 - c) Explain with sketches retrofitting and jacketing method used in repairs of beams and columns.
 - d) Explain with example use of sensors in structures.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (197042806)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is not used in the underpinning work.
 - a) heating method
 - b) frizzing method
 - c) pit method
 - d) All of the above
- 2) _____ metal is used for making a foamed concrete.
 - a) Aluminum
 - b) Zinc
 - c) a & b both
 - d) None of the above
- 3) One of the testing equipment used for inspection of bridge structure is _____.
 - a) Strain Gauge
 - b) Measuring Jar
 - c) Test Tubes
 - d) None of these
- 4) _____ is the process in which we cover the structural members of a building to increase the strength of the building.
 - a) Jacketing
 - b) Shoring
 - c) Scaffolding
 - d) Demolition
- 5) _____ is a similar phenomenon to explosion but the pieces collapse into the center of the object instead of being expelled.
 - a) Explosion
 - b) An implosion
 - c) Both a and b
 - d) None of the above
- 6) Remove a whole building or part of building in control way is known as _____.
 - a) restoration
 - b) demolition
 - c) retrofitting
 - d) maintenance
- 7) _____ equipment used for starting the explosion in explosive material.
 - a) Detonators
 - b) Starting cap
 - c) Current switch
 - d) None of the above
- 8) _____ factor does not affect the quantity of the explosive material.
 - a) Column size
 - b) Column shape
 - c) Size of demolition
 - d) Depth of the hole
- 9) _____ involves strengthening a building structure to better withstand seismic activity such as earthquake.
 - a) Seismic retrofitting
 - b) Plastering
 - c) Shuttering
 - d) Honeycombing

- 10) Maintaining prestressed concrete structures of various types in a fit and serviceable condition is primary function of _____.
a) Maintenance engineer b) Design engineer
c) Structural engineer d) Architect
- 11) Honey combing in concrete is caused due to _____.
a) Inadequate compaction b) Chemical reaction
c) Shock waves d) Lack of curing
- 12) Bacterial concrete is a _____ concrete.
a) porous b) self-healing
c) foamed d) vacuum
- 13) The pH value of fresh concrete is around _____.
a) 10 b) 9
c) 8 d) 12.5
- 14) _____ is the main reason for crack generation in concrete.
a) movement of humidity b) sleep
c) difference in temperature d) All of the above

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Repairs & Rehabilitation of Structures (197042806)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any One. 10**
- a) Explain bacterial concrete / self-healing concrete and vacuum concrete.
 - b) Explain assessment procedures for inspection and evaluating a damaged structure.
- Q.3 Solve any Two. 18**
- a) Explain with sketches Shoring and Underpinning.
 - b) Discuss in detail maintenance of structure.
 - c) Discuss Shotcrete and Guniting as repair techniques.
 - d) Explain the various causes for deterioration of concrete structures.

Section – II

- Q.4 Solve any One. 10**
- a) Explain in detail repairs of marine structures.
 - b) Demolition techniques used for dilapidated buildings.
- Q.5 Solve any Two. 18**
- a) Explain techniques used in repairs for leakages in R.C. slab.
 - b) Discuss in detail structural health monitoring.
 - c) Explain with sketches retrofitting and jacketing method used in repairs of beams and columns.
 - d) Explain with example use of sensors in structures.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING****Air & Noise Pollution and Control (197042813)**Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.**14**

- 1) Instruments used for wind speed record is _____.
a) Thermometer
b) Barometer
c) Anemometers
d) Solariometer
- 2) Which of the following statements is true about the Air Quality Index?
a) It indicates the colour of the air
b) It predicts ozone levels in your area
c) It determines the intensity of sound and sound pollution
d) It estimates air pollution mainly Sulphur content in the air
- 3) The effective height of stack is given by _____.
a) Plume height / Actual height of the stack
b) Plume height × Actual height of the stack
c) Plume height – Actual height of the stack
d) Plume height + Actual height of the stack
- 4) Bags in bag house filter are having length in the range of _____m.
a) 0.2 to 1.0
b) 20 to 100
c) 200 to 500
d) 2 to 10
- 5) Which of the following air pollution control device has maximum efficiency?
a) Electrostatic precipitator
b) Dynamic precipitator
c) Spray tower
d) Wet cyclonic scrubber
- 6) The Unit used for measuring noise pollution is _____.
a) Joule
b) Decibel
c) Newton
d) Nano Unit
- 7) In air, sound pressure can be measured using a _____, and in water with a _____.
a) microphone, hydrophone
b) hydrophone, microphone
c) Both a & b
d) None of these
- 8) _____ of following is/are secondary air pollutant.
a) CO₂
b) PAN
c) PBN
d) CO

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air & Noise Pollution and Control (197042813)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain Common Air Pollutants and its sources in a tabular form. **05**
b) Explain with neat sketch "Plume Behavior." **05**
- Q.3** a) A factory uses 1.7 million litres of fuel oil/month. The exhaust gases from factory contain the following quantities of pollutants/million litres/year. **05**
- Particulate matter = 4.7 tonnes / year
 - Sulphur dioxide = 19 tonnes / year
- Determine the safe (minimum) height of chimney required for safe dispersion of pollutants.
- b) What are the harmful effects of air pollutants on Human Health. **04**
- Q.4** a) Explain meteorological factors influencing air pollution. **05**
b) What is photochemical smog and explain the theory of formation of smog with respective to nitrogen dioxide? **04**
- Q.5 Write short notes on. (Any Three) 09**
- a) Acid Rain
 - b) London Smog
 - c) Global Warming
 - d) Effective stack height

Section – II

- Q.6** a) Explain the working and principle of the cyclone separator with neat sketch for air pollution control. **06**
b) What is the basic concept of noise pollution? **04**
- Q.7** a) Two air pollution equipment's (Gravity settling Chamber and Cyclone Separator) are connected in series. Efficiencies of Gravity settling Chamber and Cyclone Separator is 85% and 80% respectively. Determine overall efficiency of the system. **05**
b) Explain with neat sketch and working operation of Spray Tower. **04**

- Q.8** a) Explain with neat sketch Gravity settling chamber. **05**
b) Explain with neat sketch Bag house Filter. **04**
- Q.9 Write short notes on (Any Three)** **09**
- a) Types of Noise Pollution
 - b) Sources of Sound
 - c) Vehicular Pollution
 - d) Catalytic converter for air pollution control

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air & Noise Pollution and Control (197042813)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) _____ of following is/are secondary air pollutant.

a) CO ₂	b) PAN
c) PBN	d) CO
- 2) What is the total percentage of nitrogen gas in the air?

a) 12%	b) 21%
c) 78%	d) 87%
- 3) _____ is known as vertical temperature gradient.

a) Lapse Rate	b) Radiation inversion
c) Subsidence inversion	d) Mixing Height
- 4) Main impact of Greenhouse effect is _____.

a) Increase in vegetation	b) Decrease in vegetation
c) No effect on vegetation	d) None of these
- 5) The spread of plume is directly related to _____.

a) Atmospheric stability	b) Vertical temperature gradient
c) Moisture content	d) Plume rise and dispersion
- 6) The depth of troposphere changes constantly due to change in _____.

a) Humidity	b) Temperature
c) Moisture	d) Density of air
- 7) Which of the following is (are) responsible for ozone layer depletion?

a) Only CFC	b) Only HFC
c) CFC & HFC	d) None of these
- 8) Instruments used for wind speed record is _____.

a) Thermometer	b) Barometer
c) Anemometers	d) Solarimeter
- 9) Which of the following statements is true about the Air Quality Index?

a) It indicates the colour of the air
b) It predicts ozone levels in your area
c) It determines the intensity of sound and sound pollution
d) It estimates air pollution mainly Sulphur content in the air

- 10) The effective height of stack is given by _____.
- a) Plume height / Actual height of the stack
 - b) Plume height \times Actual height of the stack
 - c) Plume height – Actual height of the stack
 - d) Plume height + Actual height of the stack
- 11) Bags in bag house filter are having length in the range of _____m.
- a) 0.2 to 1.0
 - b) 20 to 100
 - c) 200 to 500
 - d) 2 to 10
- 12) Which of the following air pollution control device has maximum efficiency?
- a) Electrostatic precipitator
 - b) Dynamic precipitator
 - c) Spray tower
 - d) Wet cyclonic scrubber
- 13) The Unit used for measuring noise pollution is _____.
- a) Joule
 - b) Decibel
 - c) Newton
 - d) Nano Unit
- 14) In air, sound pressure can be measured using a _____, and in water with a _____.
- a) microphone, hydrophone
 - b) hydrophone, microphone
 - c) Both a & b
 - d) None of these

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air & Noise Pollution and Control (197042813)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain Common Air Pollutants and its sources in a tabular form. **05**
b) Explain with neat sketch "Plume Behavior." **05**
- Q.3** a) A factory uses 1.7 million litres of fuel oil/month. The exhaust gases from factory contain the following quantities of pollutants/million litres/year. **05**
- Particulate matter = 4.7 tonnes / year
 - Sulphur dioxide = 19 tonnes / year
- Determine the safe (minimum) height of chimney required for safe dispersion of pollutants.
- b) What are the harmful effects of air pollutants on Human Health. **04**
- Q.4** a) Explain meteorological factors influencing air pollution. **05**
b) What is photochemical smog and explain the theory of formation of smog with respective to nitrogen dioxide? **04**
- Q.5 Write short notes on. (Any Three) 09**
- a) Acid Rain
 - b) London Smog
 - c) Global Warming
 - d) Effective stack height

Section – II

- Q.6** a) Explain the working and principle of the cyclone separator with neat sketch for air pollution control. **06**
b) What is the basic concept of noise pollution? **04**
- Q.7** a) Two air pollution equipment's (Gravity settling Chamber and Cyclone Separator) are connected in series. Efficiencies of Gravity settling Chamber and Cyclone Separator is 85% and 80% respectively. Determine overall efficiency of the system. **05**
b) Explain with neat sketch and working operation of Spray Tower. **04**

- Q.8** a) Explain with neat sketch Gravity settling chamber. **05**
b) Explain with neat sketch Bag house Filter. **04**
- Q.9 Write short notes on (Any Three)** **09**
- a) Types of Noise Pollution
 - b) Sources of Sound
 - c) Vehicular Pollution
 - d) Catalytic converter for air pollution control

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air & Noise Pollution and Control (197042813)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Main impact of Greenhouse effect is _____.
a) Increase in vegetation b) Decrease in vegetation
c) No effect on vegetation d) None of these
- 2) The spread of plume is directly related to _____.
a) Atmospheric stability b) Vertical temperature gradient
c) Moisture content d) Plume rise and dispersion
- 3) The depth of troposphere changes constantly due to change in _____.
a) Humidity b) Temperature
c) Moisture d) Density of air
- 4) Which of the following is (are) responsible for ozone layer depletion?
a) Only CFC b) Only HFC
c) CFC & HFC d) None of these
- 5) Instruments used for wind speed record is _____.
a) Thermometer b) Barometer
c) Anemometers d) Solarimeter
- 6) Which of the following statements is true about the Air Quality Index?
a) It indicates the colour of the air
b) It predicts ozone levels in your area
c) It determines the intensity of sound and sound pollution
d) It estimates air pollution mainly Sulphur content in the air
- 7) The effective height of stack is given by _____.
a) Plume height / Actual height of the stack
b) Plume height × Actual height of the stack
c) Plume height – Actual height of the stack
d) Plume height + Actual height of the stack
- 8) Bags in bag house filter are having length in the range of _____m.
a) 0.2 to 1.0 b) 20 to 100
c) 200 to 500 d) 2 to 10

- 9) Which of the following air pollution control device has maximum efficiency?
a) Electrostatic precipitator b) Dynamic precipitator
c) Spray tower d) Wet cyclonic scrubber
- 10) The Unit used for measuring noise pollution is _____.
a) Joule b) Decibel
c) Newton d) Nano Unit
- 11) In air, sound pressure can be measured using a _____, and in water with a _____.
a) microphone, hydrophone b) hydrophone, microphone
c) Both a & b d) None of these
- 12) _____ of following is/are secondary air pollutant.
a) CO₂ b) PAN
c) PBN d) CO
- 13) What is the total percentage of nitrogen gas in the air?
a) 12% b) 21%
c) 78% d) 87%
- 14) _____ is known as vertical temperature gradient.
a) Lapse Rate b) Radiation inversion
c) Subsidence inversion d) Mixing Height

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air & Noise Pollution and Control (197042813)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain Common Air Pollutants and its sources in a tabular form. **05**
b) Explain with neat sketch "Plume Behavior." **05**
- Q.3** a) A factory uses 1.7 million litres of fuel oil/month. The exhaust gases from factory contain the following quantities of pollutants/million litres/year. **05**
- Particulate matter = 4.7 tonnes / year
 - Sulphur dioxide = 19 tonnes / year
- Determine the safe (minimum) height of chimney required for safe dispersion of pollutants.
- b) What are the harmful effects of air pollutants on Human Health. **04**
- Q.4** a) Explain meteorological factors influencing air pollution. **05**
b) What is photochemical smog and explain the theory of formation of smog with respective to nitrogen dioxide? **04**
- Q.5 Write short notes on. (Any Three) 09**
- a) Acid Rain
 - b) London Smog
 - c) Global Warming
 - d) Effective stack height

Section – II

- Q.6** a) Explain the working and principle of the cyclone separator with neat sketch for air pollution control. **06**
b) What is the basic concept of noise pollution? **04**
- Q.7** a) Two air pollution equipment's (Gravity settling Chamber and Cyclone Separator) are connected in series. Efficiencies of Gravity settling Chamber and Cyclone Separator is 85% and 80% respectively. Determine overall efficiency of the system. **05**
b) Explain with neat sketch and working operation of Spray Tower. **04**

- Q.8** a) Explain with neat sketch Gravity settling chamber. **05**
b) Explain with neat sketch Bag house Filter. **04**
- Q.9 Write short notes on (Any Three)** **09**
- a) Types of Noise Pollution
 - b) Sources of Sound
 - c) Vehicular Pollution
 - d) Catalytic converter for air pollution control

- 10) Instruments used for wind speed record is _____.
- a) Thermometer
 - b) Barometer
 - c) Anemometers
 - d) Solarimeter
- 11) Which of the following statements is true about the Air Quality Index?
- a) It indicates the colour of the air
 - b) It predicts ozone levels in your area
 - c) It determines the intensity of sound and sound pollution
 - d) It estimates air pollution mainly Sulphur content in the air
- 12) The effective height of stack is given by _____.
- a) Plume height / Actual height of the stack
 - b) Plume height \times Actual height of the stack
 - c) Plume height – Actual height of the stack
 - d) Plume height + Actual height of the stack
- 13) Bags in bag house filter are having length in the range of _____m.
- a) 0.2 to 1.0
 - b) 20 to 100
 - c) 200 to 500
 - d) 2 to 10
- 14) Which of the following air pollution control device has maximum efficiency?
- a) Electrostatic precipitator
 - b) Dynamic precipitator
 - c) Spray tower
 - d) Wet cyclonic scrubber

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Air & Noise Pollution and Control (197042813)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain Common Air Pollutants and its sources in a tabular form. **05**
b) Explain with neat sketch "Plume Behavior." **05**
- Q.3** a) A factory uses 1.7 million litres of fuel oil/month. The exhaust gases from factory contain the following quantities of pollutants/million litres/year. **05**
- Particulate matter = 4.7 tonnes / year
 - Sulphur dioxide = 19 tonnes / year
- Determine the safe (minimum) height of chimney required for safe dispersion of pollutants.
- b) What are the harmful effects of air pollutants on Human Health. **04**
- Q.4** a) Explain meteorological factors influencing air pollution. **05**
b) What is photochemical smog and explain the theory of formation of smog with respective to nitrogen dioxide? **04**
- Q.5 Write short notes on. (Any Three) 09**
- a) Acid Rain
 - b) London Smog
 - c) Global Warming
 - d) Effective stack height

Section – II

- Q.6** a) Explain the working and principle of the cyclone separator with neat sketch for air pollution control. **06**
b) What is the basic concept of noise pollution? **04**
- Q.7** a) Two air pollution equipment's (Gravity settling Chamber and Cyclone Separator) are connected in series. Efficiencies of Gravity settling Chamber and Cyclone Separator is 85% and 80% respectively. Determine overall efficiency of the system. **05**
b) Explain with neat sketch and working operation of Spray Tower. **04**

- Q.8** a) Explain with neat sketch Gravity settling chamber. **05**
b) Explain with neat sketch Bag house Filter. **04**
- Q.9 Write short notes on (Any Three)** **09**
- a) Types of Noise Pollution
 - b) Sources of Sound
 - c) Vehicular Pollution
 - d) Catalytic converter for air pollution control

- 9) Pick up the incorrect statement from the following:
- a) Insufficient quantity of water makes the concrete mix harsh
 - b) Insufficient quantity of water makes the concrete unworkable
 - c) Excess quantity of water makes the concrete segregated
 - d) All of the above
- 10) Vicat's apparatus is used for _____.
- a) Consistency test
 - b) Fineness test
 - c) Strength test
 - d) Soundness test
- 11) If 1500 g of water is required to have a cement paste 1875 g of normal consistency, the percentage of water is _____.
- a) 15 %
 - b) 20 %
 - c) 25 %
 - d) 30 %
- 12) For given water content, workability decreases if the concrete aggregates contain an excess of _____.
- a) Flat particles
 - b) Elongated particles
 - c) Flaky particles
 - d) All of the above
- 13) Grading of Fine aggregate _____.
- a) Affects the workability
 - b) Affects the strength of concrete
 - c) Is depends on the shape & texture of the particles of the aggregates
 - d) Affects the w/c ratio
- 14) For ensuring quality of concrete, one should use _____.
- a) Single sized aggregates
 - b) Well graded aggregates
 - c) Coarse aggregates
 - d) All of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Write in detail how the mineral admixtures are classified. **10**
- Q.3** Discuss the maturity of concrete? How is it measured? What are its uses in concrete industry? **09**
- Q.4** Explain specific differentiation between High performance concrete and High strength concrete. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** Explain the design considerations of roller-compacted concrete. **10**
- Q.7** How is the ready mixed concrete specified to satisfy the requirement in the fresh & hardened state? **09**
- Q.8** In mix proportioning, why is it desirable to use the minimum quantity of water. **09**
- Q.9** What are the advantages and disadvantages of revibration of concrete? **09**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Grading of aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Is depends on the shape & texture of the particles of the aggregates
 - d) All of above
- 2) Pick up the incorrect statement from the following:
 - a) Insufficient quantity of water makes the concrete mix harsh
 - b) Insufficient quantity of water makes the concrete unworkable
 - c) Excess quantity of water makes the concrete segregated
 - d) All of the above
- 3) Vicat's apparatus is used for _____.
 - a) Consistency test
 - b) Fineness test
 - c) Strength test
 - d) Soundness test
- 4) If 1500 g of water is required to have a cement paste 1875 g of normal consistency, the percentage of water is _____.
 - a) 15 %
 - b) 20 %
 - c) 25 %
 - d) 30 %
- 5) For given water content, workability decreases if the concrete aggregates contain an excess of _____.
 - a) Flat particles
 - b) Elongated particles
 - c) Flaky particles
 - d) All of the above
- 6) Grading of Fine aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Is depends on the shape & texture of the particles of the aggregates
 - d) Affects the w/c ratio
- 7) For ensuring quality of concrete, one should use _____.
 - a) Single sized aggregates
 - b) Well graded aggregates
 - c) Coarse aggregates
 - d) All of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Write in detail how the mineral admixtures are classified. **10**
- Q.3** Discuss the maturity of concrete? How is it measured? What are its uses in concrete industry? **09**
- Q.4** Explain specific differentiation between High performance concrete and High strength concrete. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** Explain the design considerations of roller-compacted concrete. **10**
- Q.7** How is the ready mixed concrete specified to satisfy the requirement in the fresh & hardened state? **09**
- Q.8** In mix proportioning, why is it desirable to use the minimum quantity of water. **09**
- Q.9** What are the advantages and disadvantages of revibration of concrete? **09**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) If 1500 g of water is required to have a cement paste 1875 g of normal consistency, the percentage of water is _____.
 a) 15 % b) 20 %
 c) 25 % d) 30 %
- 2) For given water content, workability decreases if the concrete aggregates contain an excess of _____.
 a) Flat particles b) Elongated particles
 c) Flaky particles d) All of the above
- 3) Grading of Fine aggregate _____.
 a) Affects the workability
 b) Affects the strength of concrete
 c) Is depends on the shape & texture of the particles of the aggregates
 d) Affects the w/c ratio
- 4) For ensuring quality of concrete, one should use _____.
 a) Single sized aggregates b) Well graded aggregates
 c) Coarse aggregates d) All of the above
- 5) Volume of one bag of cement is taken as _____.
 a) 35 liters b) 70 liters
 c) 35 m³ d) 70m³
- 6) Final setting time of cement is _____.
 a) Minimum 30 min b) Maximum 30 min
 c) Minimum 600 min d) Maximum 600 min
- 7) Initial setting time of cement is _____.
 a) Minimum 30 min b) Maximum 30 min
 c) Minimum 600 min d) Maximum 600 min
- 8) For determination of bending strength of concrete, the test on concrete can be done by _____.
 a) Centre point loading method and third point loading method
 b) Centre point loading method and three point loading method
 c) Midpoint loading method and third point loading method
 d) Midpoint loading method and third point loading method

Seat No.	
---------------------	--

Set R

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Write in detail how the mineral admixtures are classified. **10**
- Q.3** Discuss the maturity of concrete? How is it measured? What are its uses in concrete industry? **09**
- Q.4** Explain specific differentiation between High performance concrete and High strength concrete. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** Explain the design considerations of roller-compacted concrete. **10**
- Q.7** How is the ready mixed concrete specified to satisfy the requirement in the fresh & hardened state? **09**
- Q.8** In mix proportioning, why is it desirable to use the minimum quantity of water. **09**
- Q.9** What are the advantages and disadvantages of revibration of concrete? **09**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Workability of concrete for given water content is good if the aggregates are _____.
 - a) Angular aggregates
 - b) Rounded aggregates
 - c) Irregular aggregates
 - d) Flaky aggregates
- 2) Finer grinding of cement results in _____.
 - a) More ultimate strength
 - b) Early development of strength
 - c) Both a and b
 - d) Does not affect the strength
- 3) Grading of aggregate _____.
 - a) Affects the workability
 - b) Affects the strength of concrete
 - c) Is depends on the shape & texture of the particles of the aggregates
 - d) All of above
- 4) Pick up the incorrect statement from the following:
 - a) Insufficient quantity of water makes the concrete mix harsh
 - b) Insufficient quantity of water makes the concrete unworkable
 - c) Excess quantity of water makes the concrete segregated
 - d) All of the above
- 5) Vicat's apparatus is used for _____.
 - a) Consistency test
 - b) Fineness test
 - c) Strength test
 - d) Soundness test
- 6) If 1500 g of water is required to have a cement paste 1875 g of normal consistency, the percentage of water is _____.
 - a) 15 %
 - b) 20 %
 - c) 25 %
 - d) 30 %
- 7) For given water content, workability decreases if the concrete aggregates contain an excess of _____.
 - a) Flat particles
 - b) Elongated particles
 - c) Flaky particles
 - d) All of the above

- 8) Grading of Fine aggregate _____.
- a) Affects the workability
 - b) Affects the strength of concrete
 - c) Is depends on the shape & texture of the particles of the aggregates
 - d) Affects the w/c ratio
- 9) For ensuring quality of concrete, one should use _____.
- a) Single sized aggregates
 - b) Well graded aggregates
 - c) Coarse aggregates
 - d) All of the above
- 10) Volume of one bag of cement is taken as _____.
- a) 35 liters
 - b) 70 liters
 - c) 35 m³
 - d) 70m³
- 11) Final setting time of cement is _____.
- a) Minimum 30 min
 - b) Maximum 30 min
 - c) Minimum 600 min
 - d) Maximum 600 min
- 12) Initial setting time of cement is _____.
- a) Minimum 30 min
 - b) Maximum 30 min
 - c) Minimum 600 min
 - d) Maximum 600 min
- 13) For determination of bending strength of concrete, the test on concrete can be done by _____.
- a) Centre point loading method and third point loading method
 - b) Centre point loading method and three point loading method
 - c) Midpoint loading method and third point loading method
 - d) Midpoint loading method and third point loading method
- 14) The chemical reaction of cement with water is called as _____.
- a) Curing
 - b) Hydration
 - c) Bleeding
 - d) Segregation

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Advanced Concrete Technology (197042821)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** Write in detail how the mineral admixtures are classified. **10**
- Q.3** Discuss the maturity of concrete? How is it measured? What are its uses in concrete industry? **09**
- Q.4** Explain specific differentiation between High performance concrete and High strength concrete. **09**
- Q.5** What is self compacting concrete? Explain why vibrator is not needed for self compacting concrete. **09**

Section – II

- Q.6** Explain the design considerations of roller-compacted concrete. **10**
- Q.7** How is the ready mixed concrete specified to satisfy the requirement in the fresh & hardened state? **09**
- Q.8** In mix proportioning, why is it desirable to use the minimum quantity of water. **09**
- Q.9** What are the advantages and disadvantages of revibration of concrete? **09**

Seat No.	
----------	--

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024

Max. Marks: 100

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ are mathematical models representing relationship with an individual system.
 - a) Statistical models
 - b) Casual models
 - c) Stochastic Models
 - d) Simple Models
- 2) _____ is an application of conservation of mass to the analysis of physical system.
 - a) Mass balance
 - b) Rate Constants
 - c) Conservation of mass
 - d) Law of mass action
- 3) _____ is a movement of particles from high concentration to low concentration, resulting in equal distribution of substances.
 - a) Diffusion
 - b) Dispersion
 - c) Emission
 - d) Transportation
- 4) Water quality model is a mathematical representation of _____ from land based sources to a water body.
 - a) Inorganic Pollutants
 - b) Contamination of pollutants
 - c) Movement of pollutant
 - d) Volatile compounds
- 5) _____ are distinct part of river system; transition zone between rivers and saline habitats.
 - a) Deposition
 - b) Headwater
 - c) Erosion
 - d) Estuaries
- 6) _____ equation is used as water quality model to describe decrease of DO content in a river along a certain distance by degradation of BOD
 - a) Delphi method
 - b) Streeter Phelps
 - c) Le Chatelier's
 - d) Darcy
- 7) The atmospheric stability is related to the variation with altitude of _____.
 - a) Temperature
 - b) Pressure
 - c) Humidity
 - d) All of above
- 8) _____ are used to forecast the increase in algal growth and to predict the effect of some management decision.
 - a) Water model
 - b) Transition model
 - c) Lake model
 - d) DO sag curve

Seat No.	
----------	--

Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory. Solve any two questions from the remaining.
 2) Question no. 6 is compulsory. Solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|--------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain 4 main types of Statistical model. | 07 |
| | b) Explain 5 major air pollutants and their health effects | 07 |
| Q.3 | a) What are the elements of Streeter Phelps model? | 07 |
| | b) What factors affect the intensity of Oxygen sag curve | 06 |
| Q.4 | a) What are the meteorological factors in dispersion of air pollutants? | 07 |
| | b) How can meteorology helps in controlling air pollutants? | 06 |
| Q.5 | a) Explain with neat sketch how Oxygen Sag Curve is created | 07 |
| | b) Write Short Notes on | 06 |
| | i) Benefits of Model Making | |
| | ii) Purpose of water quality model | |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Explain the principle of Gaussian Plume Model and also states its limitations. | 07 |
| | b) Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) Explain Delphi method process. | 06 |
| Q.8 | a) Explain Extreme value Theory for predicting Violations of Air Quality Standards. | 07 |
| | b) What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) Explain modern techniques for controlling environmental pollution. | 07 |
| | b) Write Short Notes on | 06 |
| | i) Fixed Box Model | |
| | ii) Ambient Water Quality | |

Seat No.	
----------	--

Set **Q**

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024

Max. Marks: 100

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ equation is used as water quality model to describe decrease of DO content in a river along a certain distance by degradation of BOD
 - a) Delphi method
 - b) Streeter Phelps
 - c) Le Chatelier's
 - d) Darcy
- 2) The atmospheric stability is related to the variation with altitude of _____.
 - a) Temperature
 - b) Pressure
 - c) Humidity
 - d) All of above
- 3) _____ are used to forecast the increase in algal growth and to predict the effect of some management decision.
 - a) Water model
 - b) Transition model
 - c) Lake model
 - d) DO sag curve
- 4) Mass balance ensure a consistent and accurate record of _____ material.
 - a) Decision making
 - b) Quantity and Quality
 - c) Estimating
 - d) Cost cutting
- 5) _____ use mathematical relationship to represent complex decision so that future demand can be predicted at various levels of geography.
 - a) Transport model
 - b) Building model
 - c) Diffusion model
 - d) Statistical model
- 6) Concentration such as CO and SO₂ forecast ___ due to their relative inertness
 - a) Non- reactive models
 - b) Emission Standards
 - c) Meteorology
 - d) Ambient air
- 7) _____ take the pollutant concentration to distribute in both horizontal and vertical aspects.
 - a) Atmospheric model
 - b) Transport model
 - c) Gaussian model
 - d) Diffusion model
- 8) _____ is one of the most used tools to describe water quality.
 - a) Water control index
 - b) Water quality index
 - c) Water pollution index
 - d) Extreme value index

- 9) WQI concept is based on the factor _____.
a) Parameter selection for measurement
b) Transformation and raw data parameter
c) Aggregation of sub index values
d) All of above
- 10) The density of ambient water at room temperature 20-25°C is _____.
a) 1 g/cm³
b) 0.5 g/cm³
c) 0.99 g/cm³
d) 1.98 g/cm³
- 11) _____ is used to integrate the opinion of water expert on sub index value.
a) Delphi method
b) Newton method
c) Streeter Phelps method
d) Henry's method
- 12) The object of ambient water quality programs is to ensure water quality monitoring _____.
a) Toxic Control
b) Quality assurance and quality control
c) Standard quantity
d) Pollution control
- 13) In a Gaussian model emissions and meteorological condition remains _____.
a) Unstable
b) Extremely stable
c) Constant
d) turbulence
- 14) The diffusion of pollutants by turbulence related to temperature, stratification and wind field leads to _____.
a) Stability class
b) Smog
c) Biological change in air
d) Physical change in air
- 15) The monitoring and evaluation of ambient air quality is first important steps in _____ air pollution.
a) Rapid mixing
b) Refraction
c) Agglomeration
d) Controlling
- 16) _____ are mathematical models representing relationship with an individual system.
a) Statistical models
b) Casual models
c) Stochastic Models
d) Simple Models
- 17) _____ is an application of conservation of mass to the analysis of physical system.
a) Mass balance
b) Rate Constants
c) Conservation of mass
d) Law of mass action
- 18) _____ is a movement of particles from high concentration to low concentration, resulting in equal distribution of substances.
a) Diffusion
b) Dispersion
c) Emission
d) Transportation
- 19) Water quality model is a mathematical representation of _____ from land based sources to a water body.
a) Inorganic Pollutants
b) Contamination of pollutants
c) Movement of pollutant
d) Volatile compounds

- 20) _____ are distinct part of river system; transition zone between rivers and saline habitats.
- a) Deposition
 - b) Headwater
 - c) Erosion
 - d) Estuaries

Seat No.	
----------	--

Set **Q**

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory. Solve any two questions from the remaining.
2) Question no. 6 is compulsory. Solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | |
|------------|-------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain 4 main types of Statistical model. | 07 |
| | b) Explain 5 major air pollutants and their health effects | 07 |
| Q.3 | a) What are the elements of Streeter Phelps model? | 07 |
| | b) What factors affect the intensity of Oxygen sag curve | 06 |
| Q.4 | a) What are the meteorological factors in dispersion of air pollutants? | 07 |
| | b) How can meteorology helps in controlling air pollutants? | 06 |
| Q.5 | a) Explain with neat sketch how Oxygen Sag Curve is created | 07 |
| | b) Write Short Notes on | 06 |
| | i) Benefits of Model Making | |
| | ii) Purpose of water quality model | |

Section – II

- | | | |
|------------|-----------------------------------------------------------------------------------------|-----------|
| Q.6 | a) Explain the principle of Gaussian Plume Model and also states its limitations. | 07 |
| | b) Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) Explain Delphi method process. | 06 |
| Q.8 | a) Explain Extreme value Theory for predicting Violations of Air Quality Standards. | 07 |
| | b) What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) Explain modern techniques for controlling environmental pollution. | 07 |
| | b) Write Short Notes on | 06 |
| | i) Fixed Box Model | |
| | ii) Ambient Water Quality | |

Seat No.	
----------	--

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 100

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) Concentration such as CO and SO₂ forecast ___ due to their relative inertness
 - a) Non- reactive models
 - b) Emission Standards
 - c) Meteorology
 - d) Ambient air
- 2) ___ take the pollutant concentration to distribute in both horizontal and vertical aspects.
 - a) Atmospheric model
 - b) Transport model
 - c) Gaussian model
 - d) Diffusion model
- 3) ___ is one of the most used tools to describe water quality.
 - a) Water control index
 - b) Water quality index
 - c) Water pollution index
 - d) Extreme value index
- 4) WQI concept is based on the factor _____.
 - a) Parameter selection for measurement
 - b) Transformation and raw data parameter
 - c) Aggregation of sub index values
 - d) All of above
- 5) The density of ambient water at room temperature 20-25°C is _____.
 - a) 1 g/cm³
 - b) 0.5 g/cm³
 - c) 0.99 g/cm³
 - d) 1.98 g/cm³
- 6) ___ is used to integrate the opinion of water expert on sub index value.
 - a) Delphi method
 - b) Newton method
 - c) Streeter Phelps method
 - d) Henry's method
- 7) The object of ambient water quality programs is to ensure water quality monitoring _____.
 - a) Toxic Control
 - b) Quality assurance and quality control
 - c) Standard quantity
 - d) Pollution control
- 8) In a Gaussian model emissions and meteorological condition remains _____.
 - a) Unstable
 - b) Extremely stable
 - c) Constant
 - d) turbulence

- 9) The diffusion of pollutants by turbulence related to temperature, stratification and wind field leads to _____.
a) Stability class
b) Smog
c) Biological change in air
d) Physical change in air
- 10) The monitoring and evaluation of ambient air quality is first important steps in _____ air pollution.
a) Rapid mixing
b) Refraction
c) Agglomeration
d) Controlling
- 11) _____ are mathematical models representing relationship with an individual system.
a) Statistical models
b) Casual models
c) Stochastic Models
d) Simple Models
- 12) _____ is an application of conservation of mass to the analysis of physical system.
a) Mass balance
b) Rate Constants
c) Conservation of mass
d) Law of mass action
- 13) _____ is a movement of particles from high concentration to low concentration, resulting in equal distribution of substances.
a) Diffusion
b) Dispersion
c) Emission
d) Transportation
- 14) Water quality model is a mathematical representation of _____ from land based sources to a water body.
a) Inorganic Pollutants
b) Contamination of pollutants
c) Movement of pollutant
d) Volatile compounds
- 15) _____ are distinct part of river system; transition zone between rivers and saline habitats.
a) Deposition
b) Headwater
c) Erosion
d) Estuaries
- 16) _____ equation is used as water quality model to describe decrease of DO content in a river along a certain distance by degradation of BOD
a) Delphi method
b) Streeter Phelps
c) Le Chatelier's
d) Darcy
- 17) The atmospheric stability is related to the variation with altitude of _____.
a) Temperature
b) Pressure
c) Humidity
d) All of above
- 18) _____ are used to forecast the increase in algal growth and to predict the effect of some management decision.
a) Water model
b) Transition model
c) Lake model
d) DO sag curve
- 19) Mass balance ensure a consistent and accurate record of _____ material.
a) Decision making
b) Quantity and Quality
c) Estimating
d) Cost cutting

- 20) _____ use mathematical relationship to represent complex decision so that future demand can be predicted at various levels of geography.
- a) Transport model
 - b) Building model
 - c) Diffusion model
 - d) Statistical model

Seat No.	
----------	--

Set **R**

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory. Solve any two questions from the remaining.
2) Question no. 6 is compulsory. Solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|----------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain 4 main types of Statistical model. | 07 |
| | b) | Explain 5 major air pollutants and their health effects | 07 |
| Q.3 | a) | What are the elements of Streeter Phelps model? | 07 |
| | b) | What factors affect the intensity of Oxygen sag curve | 06 |
| Q.4 | a) | What are the meteorological factors in dispersion of air pollutants? | 07 |
| | b) | How can meteorology helps in controlling air pollutants? | 06 |
| Q.5 | a) | Explain with neat sketch how Oxygen Sag Curve is created | 07 |
| | b) | Write Short Notes on | 06 |
| | | i) Benefits of Model Making | |
| | | ii) Purpose of water quality model | |

Section – II

- | | | | |
|------------|----|--------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the principle of Gaussian Plume Model and also states its limitations. | 07 |
| | b) | Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) | Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) | Explain Delphi method process. | 06 |
| Q.8 | a) | Explain Extreme value Theory for predicting Violations of Air Quality Standards. | 07 |
| | b) | What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) | Explain modern techniques for controlling environmental pollution. | 07 |
| | b) | Write Short Notes on | 06 |
| | | i) Fixed Box Model | |
| | | ii) Ambient Water Quality | |

Seat No.	
----------	--

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024

Max. Marks: 100

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:20

Q.1 Choose the correct alternatives from the given options. 20

- 1) _____ is used to integrate the opinion of water expert on sub index value.
 - a) Delphi method
 - b) Newton method
 - c) Streeter Phelps method
 - d) Henry's method
- 2) The object of ambient water quality programs is to ensure water quality monitoring _____.
 - a) Toxic Control
 - b) Quality assurance and quality control
 - c) Standard quantity
 - d) Pollution control
- 3) In a Gaussian model emissions and meteorological condition remains _____.
 - a) Unstable
 - b) Extremely stable
 - c) Constant
 - d) turbulence
- 4) The diffusion of pollutants by turbulence related to temperature, stratification and wind field leads to _____.
 - a) Stability class
 - b) Smog
 - c) Biological change in air
 - d) Physical change in air
- 5) The monitoring and evaluation of ambient air quality is first important steps in _____ air pollution.
 - a) Rapid mixing
 - b) Refraction
 - c) Agglomeration
 - d) Controlling
- 6) _____ are mathematical models representing relationship with an individual system.
 - a) Statistical models
 - b) Casual models
 - c) Stochastic Models
 - d) Simple Models
- 7) _____ is an application of conservation of mass to the analysis of physical system.
 - a) Mass balance
 - b) Rate Constants
 - c) Conservation of mass
 - d) Law of mass action

- 20)** The density of ambient water at room temperature 20-25°C is _____.
- | | |
|---------------------------|---------------------------|
| a) 1 g/cm ³ | b) 0.5 g/cm ³ |
| c) 0.99 g/cm ³ | d) 1.98 g/cm ³ |

Seat No.	
----------	--

Set **S**

**Fourth.Y. (B.Tech.) (Sem-II)(Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Water and Air Quality Modelling (197042823)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) Question no. 2 is compulsory. Solve any two questions from the remaining.
2) Question no. 6 is compulsory. Solve any two questions from the remaining.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.
5) Use of non-programmable calculator is allowed.

Section – I

- | | | | |
|------------|----|----------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain 4 main types of Statistical model. | 07 |
| | b) | Explain 5 major air pollutants and their health effects | 07 |
| Q.3 | a) | What are the elements of Streeter Phelps model? | 07 |
| | b) | What factors affect the intensity of Oxygen sag curve | 06 |
| Q.4 | a) | What are the meteorological factors in dispersion of air pollutants? | 07 |
| | b) | How can meteorology helps in controlling air pollutants? | 06 |
| Q.5 | a) | Explain with neat sketch how Oxygen Sag Curve is created | 07 |
| | b) | Write Short Notes on | 06 |
| | | i) Benefits of Model Making | |
| | | ii) Purpose of water quality model | |

Section – II

- | | | | |
|------------|----|--------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain the principle of Gaussian Plume Model and also states its limitations. | 07 |
| | b) | Explain the merits of Water Quality Index. | 07 |
| Q.7 | a) | Explain Fixed box model with respect to wind blowing parallel to longer direction X. | 07 |
| | b) | Explain Delphi method process. | 06 |
| Q.8 | a) | Explain Extreme value Theory for predicting Violations of Air Quality Standards. | 07 |
| | b) | What are the six categories of National Air Quality Index? | 06 |
| Q.9 | a) | Explain modern techniques for controlling environmental pollution. | 07 |
| | b) | Write Short Notes on | 06 |
| | | i) Fixed Box Model | |
| | | ii) Ambient Water Quality | |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Design of Bridges (197042816)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two Lane Bridge with following data: **10**
- a) Effective span – 6 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A Two lanes
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.64$
- Q.3** **04**
- a) Write a note on investigations need to be carried out for bridge across a river.
 - b) Explain the subsoil exploration needed in the design of major bridges? **05**
Write in detail about any one technique of sub soil exploration.
- Q.4** A RCC T beam type bridge having deck slab of 200 mm thick, wearing coat of 80 mm thick, three longitudinal girders and five cross girders. Determine the design bending moment for all longitudinal girders. Use following additional data, **09**
- i) Carriage way width – 7.5 m
 - ii) Span of bridge – 14 m
 - iii) Live Load – IRC class AA Tracked
 - iv) Kerb – 600 mm wide, 400 mm deep
 - v) Web thickness for Longitudinal and cross girder – 300 mm
 - vi) Longitudinal Girder spacing – 3.5 m
 - vii) Use M-30 concrete and Fe-415 steel
- Q.5** **Answer the following.**
- a) Explain the IRC class A loading for bridges. Write about its suitability. **05**
 - b) Explain the Piguad's theory for the analysis of slab panels. What are the limitations of this theory? **04**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
Top width of pier - 16 m, Height of pier up to springing level - 7 m, C/C distance of bearing - 1.2m, Side batter 1:12, HFL - 1.5 m below the bearing level, Span of bridge - 8 m, carriage way width - 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 700 kN, Braking force - 140 kN, wind pressure on pier - 2.4 kN/m². Material of pier = M20 concrete. Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** a) What is Reinforced earth retaining wall? Explain with neat sketch. **05**
b) Write a note on various stability conditions of abutments. **04**
- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
Vertical load (sustained) = 196 kN,
Vertical load (dynamic) = 46 kN,
Horizontal force = 56 kN
Modulus of rigidity of elastomer - 1.1 N/mm²
Coefficient of friction = 0.3
- b) Explain various functions of bearing. **04**
- Q.9** Write a note on following. (Any three) **09**
a) Types of Pier
b) Maintenance of bridges
c) Expansion Joints
d) Types of Bearing

Seat
No.

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Design of Bridges (197042816)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Pigeaud's curves are used to calculate _____.
 a) Bending moment coefficients b) Load factor
 c) Impact factor d) Effective span
- 2) Load factor 'K' by Courbon's theory for uniform MI is given by, _____.
 a) $\frac{\sum W}{n} \left[1 + \frac{neI_1X_1}{\sum I_iX_i^2} \right]$ b) $\frac{\sum W}{n} \left[n + \frac{eX_1}{\sum X^2} \right]$
 c) $\frac{\sum W}{n} \left[1 + \frac{neX_1}{\sum X^2} \right]$ d) $\frac{\sum W}{n} \left[n + \frac{eI_1X_1}{\sum I_iX_i^2} \right]$
- 3) Permissible maximum compressive stress of plain concrete M20 is _____.
 a) 7.0 MPa b) 2.7 MPa
 c) 5.0 MPa d) 1.5 MPa
- 4) Expansion bearing allow _____.
 a) Rotation only
 b) Translation only
 c) Both rotational as well as translation
 d) Restrict rotation as well as translation
- 5) Following is not type of Expansion bearing _____.
 a) Sliding plate beam b) Steel roller-cum-rocker bearing
 c) Elastomeric bearing d) Rocker bearing
- 6) Elastomeric having ultimate tensile strain _____.
 a) 300 percent maximum b) 300 percent minimum
 c) 400 percent maximum d) 400 percent minimum
- 7) Guideline for the design of bridge foundation are available in IRC bridge code section _____.
 a) I b) III
 c) V d) VII
- 8) Aquaduct is the classification of bridge according to _____.
 a) Material b) Function
 c) Type of superstructure d) Inter-span relationship

- 9) Section VII of IRC bridge code deals with _____.
- a) Composite construction b) Bearings
c) Cement concrete d) Foundations & substructure
- 10) To provide for the possible variation of the direction of the water current, allowance for an extra variation of water current direction is _____.
- a) 15° b) 20°
c) 25° d) 35°
- 11) The minimum side clearance from kerb for class AA tracked loading is _____.
- a) 0.15m b) 1.0m
c) 1.2m d) None of these
- 12) The minimum height of Kerb may be taken as _____ above the road level.
- a) 250mm b) 225mm
c) 600mm d) 300mm
- 13) Permissible shear stress (τ_{co}) for M-25 concrete is _____.
- a) 0.28 N/mm² b) 0.34 N/mm²
c) 0.4 N/mm² d) 0.45 N/mm²
- 14) Pigeaud's method is most useful when K is more than _____.
- a) 0.44 b) 0.50
c) 0.55 d) 0.60

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Design of Bridges (197042816)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two Lane Bridge with following data: **10**
- a) Effective span – 6 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A Two lanes
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.64$
- Q.3** **04**
- a) Write a note on investigations need to be carried out for bridge across a river.
 - b) Explain the subsoil exploration needed in the design of major bridges? **05**
Write in detail about any one technique of sub soil exploration.
- Q.4** A RCC T beam type bridge having deck slab of 200 mm thick, wearing coat of 80 mm thick, three longitudinal girders and five cross girders. Determine the design bending moment for all longitudinal girders. Use following additional data, **09**
- i) Carriage way width – 7.5 m
 - ii) Span of bridge – 14 m
 - iii) Live Load – IRC class AA Tracked
 - iv) Kerb – 600 mm wide, 400 mm deep
 - v) Web thickness for Longitudinal and cross girder – 300 mm
 - vi) Longitudinal Girder spacing – 3.5 m
 - vii) Use M-30 concrete and Fe-415 steel
- Q.5** Answer the following.
- a) Explain the IRC class A loading for bridges. Write about its suitability. **05**
 - b) Explain the Piguad's theory for the analysis of slab panels. What are the limitations of this theory? **04**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier - 16 m, Height of pier up to springing level - 7 m, C/C distance of bearing - 1.2m, Side batter 1:12, HFL - 1.5 m below the bearing level, Span of bridge - 8 m, carriage way width - 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 700 kN, Braking force - 140 kN, wind pressure on pier - 2.4 kN/m². Material of pier = M20 concrete. Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** a) What is Reinforced earth retaining wall? Explain with neat sketch. **05**
 b) Write a note on various stability conditions of abutments. **04**
- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 196 kN,
 Vertical load (dynamic) = 46 kN,
 Horizontal force = 56 kN
 Modulus of rigidity of elastomer - 1.1 N/mm²
 Coefficient of friction = 0.3
- b) Explain various functions of bearing. **04**
- Q.9** Write a note on following. (Any three) **09**
 a) Types of Pier
 b) Maintenance of bridges
 c) Expansion Joints
 d) Types of Bearing

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Design of Bridges (197042816)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Expansion bearing allow _____.
 - a) Rotation only
 - b) Translation only
 - c) Both rotational as well as translation
 - d) Restrict rotation as well as translation
- 2) Following is not type of Expansion bearing _____.
 - a) Sliding plate beam
 - b) Steel roller-cum-rocker bearing
 - c) Elastomeric bearing
 - d) Rocker bearing
- 3) Elastomeric having ultimate tensile strain _____.
 - a) 300 percent maximum
 - b) 300 percent minimum
 - c) 400 percent maximum
 - d) 400 percent minimum
- 4) Guideline for the design of bridge foundation are available in IRC bridge code section _____.
 - a) I
 - b) III
 - c) V
 - d) VII
- 5) Aquaduct is the classification of bridge according to _____.
 - a) Material
 - b) Function
 - c) Type of superstructure
 - d) Inter-span relationship
- 6) Section VII of IRC bridge code deals with _____.
 - a) Composite construction
 - b) Bearings
 - c) Cement concrete
 - d) Foundations & substructure
- 7) To provide for the possible variation of the direction of the water current, allowance for an extra variation of water current direction is _____.
 - a) 15°
 - b) 20°
 - c) 25°
 - d) 35°
- 8) The minimum side clearance from kerb for class AA tracked loading is _____.
 - a) 0.15m
 - b) 1.0mm
 - c) 1.2mm
 - d) None of these

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Design of Bridges (197042816)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two Lane Bridge with following data: **10**
- a) Effective span – 6 m
 - b) Carriage way width – 7.5 m
 - c) Kerb – 600 × 275 on both side
 - d) Live load – IRC Class A Two lanes
 - e) Wearing coat – 100 mm thick
 - f) Use M-25 concrete and Fe-415 steel
 - g) Use $\alpha = 2.64$
- Q.3** **04**
- a) Write a note on investigations need to be carried out for bridge across a river.
 - b) Explain the subsoil exploration needed in the design of major bridges? **05**
Write in detail about any one technique of sub soil exploration.
- Q.4** A RCC T beam type bridge having deck slab of 200 mm thick, wearing coat of 80 mm thick, three longitudinal girders and five cross girders. Determine the design bending moment for all longitudinal girders. Use following additional data, **09**
- i) Carriage way width – 7.5 m
 - ii) Span of bridge – 14 m
 - iii) Live Load – IRC class AA Tracked
 - iv) Kerb – 600 mm wide, 400 mm deep
 - v) Web thickness for Longitudinal and cross girder – 300 mm
 - vi) Longitudinal Girder spacing – 3.5 m
 - vii) Use M-30 concrete and Fe-415 steel
- Q.5** **Answer the following.**
- a) Explain the IRC class A loading for bridges. Write about its suitability. **05**
 - b) Explain the Piguad's theory for the analysis of slab panels. What are the limitations of this theory? **04**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier - 16 m, Height of pier up to springing level - 7 m, C/C distance of bearing - 1.2m, Side batter 1:12, HFL - 1.5 m below the bearing level, Span of bridge - 8 m, carriage way width - 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 700 kN, Braking force - 140 kN, wind pressure on pier - 2.4 kN/m². Material of pier = M20 concrete.
 Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** a) What is Reinforced earth retaining wall? Explain with neat sketch. **05**
 b) Write a note on various stability conditions of abutments. **04**
- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 196 kN,
 Vertical load (dynamic) = 46 kN,
 Horizontal force = 56 kN
 Modulus of rigidity of elastomer - 1.1 N/mm²
 Coefficient of friction = 0.3
- b) Explain various functions of bearing. **04**
- Q.9** Write a note on following. (Any three) **09**
 a) Types of Pier
 b) Maintenance of bridges
 c) Expansion Joints
 d) Types of Bearing

Seat
No.

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Design of Bridges (197042816)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2** Design a solid deck slab for Two Lane Bridge with following data: **10**
- Effective span – 6 m
 - Carriage way width – 7.5 m
 - Kerb – 600 × 275 on both side
 - Live load – IRC Class A Two lanes
 - Wearing coat – 100 mm thick
 - Use M-25 concrete and Fe-415 steel
 - Use $\alpha = 2.64$
- Q.3** a) Write a note on investigations need to be carried out for bridge across a river. **04**
- b) Explain the subsoil exploration needed in the design of major bridges? Write in detail about any one technique of sub soil exploration. **05**
- Q.4** A RCC T beam type bridge having deck slab of 200 mm thick, wearing coat of 80 mm thick, three longitudinal girders and five cross girders. Determine the design bending moment for all longitudinal girders. Use following additional data, **09**
- Carriage way width – 7.5 m
 - Span of bridge – 14 m
 - Live Load – IRC class AA Tracked
 - Kerb – 600 mm wide, 400 mm deep
 - Web thickness for Longitudinal and cross girder – 300 mm
 - Longitudinal Girder spacing – 3.5 m
 - Use M-30 concrete and Fe-415 steel
- Q.5** Answer the following.
- Explain the IRC class A loading for bridges. Write about its suitability. **05**
 - Explain the Piguad's theory for the analysis of slab panels. What are the limitations of this theory? **04**

Section – II

- Q.6** Verify the adequacy of pier for the following data: **10**
 Top width of pier - 16 m, Height of pier up to springing level - 7 m, C/C distance of bearing - 1.2m, Side batter 1:12, HFL - 1.5 m below the bearing level, Span of bridge - 8 m, carriage way width - 7.5 m, Reaction due to D.L. from each span = 2000 kN, Reaction due to L.L. from each span = 700 kN, Braking force - 140 kN, wind pressure on pier - 2.4 kN/m². Material of pier = M20 concrete.
 Estimate the maximum and minimum stress developed at the base of the pier due to critical combination of various loads for dry condition and Flood condition.
- Q.7** a) What is Reinforced earth retaining wall? Explain with neat sketch. **05**
 b) Write a note on various stability conditions of abutments. **04**
- Q.8** a) Design an elastomeric unreinforced bearing pad for following data **05**
 Vertical load (sustained) = 196 kN,
 Vertical load (dynamic) = 46 kN,
 Horizontal force = 56 kN
 Modulus of rigidity of elastomer - 1.1 N/mm²
 Coefficient of friction = 0.3
- b) Explain various functions of bearing. **04**
- Q.9** Write a note on following. (Any three) **09**
 a) Types of Pier
 b) Maintenance of bridges
 c) Expansion Joints
 d) Types of Bearing

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (197042822)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The process of creating something new is called _____.
 a) Creative flexibility b) Management
 c) Business d) Innovation
- 2) If an entrepreneur takes decisions on behalf of their enterprise, it is known as _____.
 a) Routine decisions b) Strategic decisions
 c) Organisational decisions d) Personal decisions
- 3) Which type of entrepreneur, imitates some part of business activity only when it is the only option available to run the enterprise?
 a) Innovative b) Imitative
 c) fabian d) drone
- 4) Good source of information for an entrepreneur about competitors can be obtained from _____.
 a) Websites
 b) Product information leaflets
 c) Company reports about published accounts
 d) All the above
- 5) Which of the following is a psychological factor affecting entrepreneurial growth?
 a) Legitimacy of Entrepreneurship b) Social status
 c) Need for achievement d) None of these
- 6) SIDBI was set up as a subsidiary of _____.
 a) IDBI b) IFCI
 c) ICICI d) SFC
- 7) Entrepreneurs are motivated by _____.
 a) Money b) Personal values
 c) Pull influences d) All the above
- 8) Which of the following is considered to be integral part of entrepreneurship?
 a) Innovation b) Risk
 c) Organizing d) All of these

- 9) Which of these is not a challenge for the entrepreneur?
- a) Managing the cash flow of their business
 - b) Recruiting new employees
 - c) Choosing the product or service to sell in the market
 - d) Formulating rules and regulations relating to conducting entrepreneurship in their country
- 10) Ownership position of less than 50 per cent in a business is known as: _____.
- a) Majority Interest
 - b) Joint Venture
 - c) Minority Interest
 - d) None of the above
- 11) The lean startup model canvas was initially proposed by _____.
- a) Elon Musk
 - b) Steve Jobs
 - c) Ash Maurya
 - d) Alexander Osterwalder
- 12) One of the disadvantages of a franchise business for a franchisee is _____.
- a) Lack of independence
 - b) Franchise businesses typically have a high failure data
 - c) Lack of brand identity
 - d) Training is not normally provided by the franchiser
- 13) Refusal to adopt and use opportunities to make changes in production _____ entrepreneurs.
- a) Fabian
 - b) Imitative
 - c) Innovative
 - d) Drone
- 14) Business risks can be _____.
- a) Avoided
 - b) Reduced
 - c) Erased
 - d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (197042822)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following questions.

- a) Write a short note on Evolution of Entrepreneurship. **07**
b) What is the Role of Entrepreneurship in Economic Development? **07**

Q.3 Attempt the following questions.

- a) What are the Problems of Women Entrepreneurship in India? **07**
b) What are the reasons for the slow growth of women entrepreneurship and remedies to solve them. **07**

Q.4 Attempt the following questions.

- a) What is the Role of Government in promoting Entrepreneurship? **07**
b) Write a short note on the Financial Support System. **07**

Section – II

Q.5 Attempt the following questions.

- a) Write a short note on working capital requirement and its financing. **07**
b) Write a short note on break even analysis cash flow charts financial statement. **07**

Q.6 Attempt the following questions.

- a) Describe concept of Preliminary and final project report preparation. **07**
b) Write financial technical commercial and economic viability of the project implementation process. **07**

Q.7 Attempt the following questions.

- a) What are the Industrial and commercial tax laws? **07**
b) What are the Communication skills and its barriers? **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (197042822)

Day & Date: Friday, 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following is considered to be integral part of entrepreneurship?
 - a) Innovation
 - b) Risk
 - c) Organizing
 - d) All of these
- 2) Which of these is not a challenge for the entrepreneur?
 - a) Managing the cash flow of their business
 - b) Recruiting new employees
 - c) Choosing the product or service to sell in the market
 - d) Formulating rules and regulations relating to conducting entrepreneurship in their country
- 3) Ownership position of less than 50 per cent in a business is known as: _____.
 - a) Majority Interest
 - b) Joint Venture
 - c) Minority Interest
 - d) None of the above
- 4) The lean startup model canvas was initially proposed by _____.
 - a) Elon Musk
 - b) Steve Jobs
 - c) Ash Maurya
 - d) Alexander Osterwalder
- 5) One of the disadvantages of a franchise business for a franchisee is _____.
 - a) Lack of independence
 - b) Franchise businesses typically have a high failure data
 - c) Lack of brand identity
 - d) Training is not normally provided by the franchiser
- 6) Refusal to adopt and use opportunities to make changes in production _____ entrepreneurs.
 - a) Fabian
 - b) Imitative
 - c) Innovative
 - d) Drone
- 7) Business risks can be _____.
 - a) Avoided
 - b) Reduced
 - c) Erased
 - d) None of the above

- 8) The process of creating something new is called _____.
a) Creative flexibility b) Management
c) Business d) Innovation
- 9) If an entrepreneur takes decisions on behalf of their enterprise, it is known as _____.
a) Routine decisions b) Strategic decisions
c) Organisational decisions d) Personal decisions
- 10) Which type of entrepreneur, imitates some part of business activity only when it is the only option available to run the enterprise?
a) Innovative b) Imitative
c) fabian d) drone
- 11) Good source of information for an entrepreneur about competitors can be obtained from _____.
a) Websites
b) Product information leaflets
c) Company reports about published accounts
d) All the above
- 12) Which of the following is a psychological factor affecting entrepreneurial growth?
a) Legitimacy of Entrepreneurship b) Social status
c) Need for achievement d) None of these
- 13) SIDBI was set up as a subsidiary of _____.
a) IDBI b) IFCI
c) ICICI d) SFC
- 14) Entrepreneurs are motivated by _____.
a) Money b) Personal values
c) Pull influences d) All the above

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (197042822)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following questions.

- a) Write a short note on Evolution of Entrepreneurship. **07**
b) What is the Role of Entrepreneurship in Economic Development? **07**

Q.3 Attempt the following questions.

- a) What are the Problems of Women Entrepreneurship in India? **07**
b) What are the reasons for the slow growth of women entrepreneurship and remedies to solve them. **07**

Q.4 Attempt the following questions.

- a) What is the Role of Government in promoting Entrepreneurship? **07**
b) Write a short note on the Financial Support System. **07**

Section – II

Q.5 Attempt the following questions.

- a) Write a short note on working capital requirement and its financing. **07**
b) Write a short note on break even analysis cash flow charts financial statement. **07**

Q.6 Attempt the following questions.

- a) Describe concept of Preliminary and final project report preparation. **07**
b) Write financial technical commercial and economic viability of the project implementation process. **07**

Q.7 Attempt the following questions.

- a) What are the Industrial and commercial tax laws? **07**
b) What are the Communication skills and its barriers? **07**

- 8) Good source of information for an entrepreneur about competitors can be obtained from _____.
- a) Websites
 - b) Product information leaflets
 - c) Company reports about published accounts
 - d) All the above
- 9) Which of the following is a psychological factor affecting entrepreneurial growth?
- a) Legitimacy of Entrepreneurship
 - b) Social status
 - c) Need for achievement
 - d) None of these
- 10) SIDBI was set up as a subsidiary of _____.
- a) IDBI
 - b) IFCI
 - c) ICICI
 - d) SFC
- 11) Entrepreneurs are motivated by _____.
- a) Money
 - b) Personal values
 - c) Pull influences
 - d) All the above
- 12) Which of the following is considered to be integral part of entrepreneurship?
- a) Innovation
 - b) Risk
 - c) Organizing
 - d) All of these
- 13) Which of these is not a challenge for the entrepreneur?
- a) Managing the cash flow of their business
 - b) Recruiting new employees
 - c) Choosing the product or service to sell in the market
 - d) Formulating rules and regulations relating to conducting entrepreneurship in their country
- 14) Ownership position of less than 50 per cent in a business is known as: _____.
- a) Majority Interest
 - b) Joint Venture
 - c) Minority Interest
 - d) None of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (197042822)**

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following questions.

- a) Write a short note on Evolution of Entrepreneurship. **07**
- b) What is the Role of Entrepreneurship in Economic Development? **07**

Q.3 Attempt the following questions.

- a) What are the Problems of Women Entrepreneurship in India? **07**
- b) What are the reasons for the slow growth of women entrepreneurship and remedies to solve them. **07**

Q.4 Attempt the following questions.

- a) What is the Role of Government in promoting Entrepreneurship? **07**
- b) Write a short note on the Financial Support System. **07**

Section – II

Q.5 Attempt the following questions.

- a) Write a short note on working capital requirement and its financing. **07**
- b) Write a short note on break even analysis cash flow charts financial statement. **07**

Q.6 Attempt the following questions.

- a) Describe concept of Preliminary and final project report preparation. **07**
- b) Write financial technical commercial and economic viability of the project implementation process. **07**

Q.7 Attempt the following questions.

- a) What are the Industrial and commercial tax laws? **07**
- b) What are the Communication skills and its barriers? **07**

- 8) Refusal to adopt and use opportunities to make changes in production _____ entrepreneurs.
- a) Fabian
 - b) Imitative
 - c) Innovative
 - d) Drone
- 9) Business risks can be _____.
- a) Avoided
 - b) Reduced
 - c) Erased
 - d) None of the above
- 10) The process of creating something new is called _____.
- a) Creative flexibility
 - b) Management
 - c) Business
 - d) Innovation
- 11) If an entrepreneur takes decisions on behalf of their enterprise, it is known as _____.
- a) Routine decisions
 - b) Strategic decisions
 - c) Organisational decisions
 - d) Personal decisions
- 12) Which type of entrepreneur, imitates some part of business activity only when it is the only option available to run the enterprise?
- a) Innovative
 - b) Imitative
 - c) Fabian
 - d) Drone
- 13) Good source of information for an entrepreneur about competitors can be obtained from _____.
- a) Websites
 - b) Product information leaflets
 - c) Company reports about published accounts
 - d) All the above
- 14) Which of the following is a psychological factor affecting entrepreneurial growth?
- a) Legitimacy of Entrepreneurship
 - b) Social status
 - c) Need for achievement
 - d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Entrepreneurship (197042822)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following questions.

- a) Write a short note on Evolution of Entrepreneurship. **07**
b) What is the Role of Entrepreneurship in Economic Development? **07**

Q.3 Attempt the following questions.

- a) What are the Problems of Women Entrepreneurship in India? **07**
b) What are the reasons for the slow growth of women entrepreneurship and remedies to solve them. **07**

Q.4 Attempt the following questions.

- a) What is the Role of Government in promoting Entrepreneurship? **07**
b) Write a short note on the Financial Support System. **07**

Section – II

Q.5 Attempt the following questions.

- a) Write a short note on working capital requirement and its financing. **07**
b) Write a short note on break even analysis cash flow charts financial statement. **07**

Q.6 Attempt the following questions.

- a) Describe concept of Preliminary and final project report preparation. **07**
b) Write financial technical commercial and economic viability of the project implementation process. **07**

Q.7 Attempt the following questions.

- a) What are the Industrial and commercial tax laws? **07**
b) What are the Communication skills and its barriers? **07**

Seat No.	
----------	--

Set

P

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

Q.2 Attempt the following questions.

- | | | |
|----|---------------------------------------------------------------------------------------------|----|
| a) | State the objectives of ground improvement. | 07 |
| b) | Explain the factors to be consider in the selection of the best soil improvement technique. | 07 |

Q.3 Attempt the following questions.

- | | | |
|----|---------------------------------------------------------|----|
| a) | Explain aims of mechanical modification. | 07 |
| b) | Explain pre loading with sand drains and fabric drains. | 07 |

Q.4 Attempt the following questions.

- | | | |
|----|--------------------------------------------------------------------------------------|----|
| a) | Explain purpose of dewatering during construction stage and post construction stage. | 07 |
| b) | What are the advantages and limitations of Electro osmotic method? | 07 |

Section – II

Q.5 Attempt the following questions.

- | | | |
|----|----------------------------------------------------------|----|
| a) | Write a detailed note on methods of heating soil insitu. | 07 |
| b) | Explain micro piling with neat sketch. | 07 |

Q.6 Attempt the following questions.

- | | | |
|----|----------------------------------------------------------|----|
| a) | Explain types of admixtures used for lime stabilization. | 07 |
| b) | Explain design of soil cement mixtures. | 07 |

Q.7 Attempt the following questions.

- | | | |
|----|-------------------------------------------------------------------------------|----|
| a) | What are the different types of bridges plate girders? Explain one in detail. | 07 |
| b) | What are the advantages and limitations of reinforced earth retaining walls. | 07 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The equipment used for vibro-compaction includes:

a) crane	b) hydraulic vibrator
c) air compressor	d) All of the above
- 2) Displacement method of Deep replacement is suitable for:

a) cohesive soil	b) cohesion less soil
c) Both a & b	d) None of the above
- 3) For displacement techniques the incorrect method from the following is _____.

a) vibro-casing	b) dynamic replacement
c) vibro-probe	d) vibro-displacement
- 4) In electro-osmosis method, when direct current is applied to the electrodes, the soil water will _____.

a) travel from positive electrode to negative electrode	b) travel from negative electrode to positive electrode
c) move towards the center between the electrodes	d) not be affected by the current
- 5) Select the correct method to control groundwater is/are:

a) Drainage	b) Dewatering
c) Barrier	d) All of the above
- 6) Choose the correct statement for the ground improvement by preloading technique:

a) preloading is especially used for low permeable geomaterial	b) fill preloading can be easily implemented in an open land with limited resources
c) basic concept of preloading is to reduce void ratio of geomaterial through consolidation	d) All of the above
- 7) The soil type suitable for jet grouting is _____.

a) Cohesive soil	b) Cohesionless soil
c) Clay	d) All of the above

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

Q.2 Attempt the following questions.

- | | | |
|----|---------------------------------------------------------------------------------------------|----|
| a) | State the objectives of ground improvement. | 07 |
| b) | Explain the factors to be consider in the selection of the best soil improvement technique. | 07 |

Q.3 Attempt the following questions.

- | | | |
|----|---------------------------------------------------------|----|
| a) | Explain aims of mechanical modification. | 07 |
| b) | Explain pre loading with sand drains and fabric drains. | 07 |

Q.4 Attempt the following questions.

- | | | |
|----|--------------------------------------------------------------------------------------|----|
| a) | Explain purpose of dewatering during construction stage and post construction stage. | 07 |
| b) | What are the advantages and limitations of Electro osmotic method? | 07 |

Section – II

Q.5 Attempt the following questions.

- | | | |
|----|----------------------------------------------------------|----|
| a) | Write a detailed note on methods of heating soil insitu. | 07 |
| b) | Explain micro piling with neat sketch. | 07 |

Q.6 Attempt the following questions.

- | | | |
|----|----------------------------------------------------------|----|
| a) | Explain types of admixtures used for lime stabilization. | 07 |
| b) | Explain design of soil cement mixtures. | 07 |

Q.7 Attempt the following questions.

- | | | |
|----|-------------------------------------------------------------------------------|----|
| a) | What are the different types of bridges plate girders? Explain one in detail. | 07 |
| b) | What are the advantages and limitations of reinforced earth retaining walls. | 07 |

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In electro-osmosis method, when direct current is applied to the electrodes, the soil water will _____.
 - a) travel from positive electrode to negative electrode
 - b) travel from negative electrode to positive electrode
 - c) move towards the center between the electrodes
 - d) not be affected by the current
- 2) Select the correct method to control groundwater is/are:
 - a) Drainage
 - b) Dewatering
 - c) Barrier
 - d) All of the above
- 3) Choose the correct statement for the ground improvement by preloading technique:
 - a) preloading is especially used for low permeable geomaterial
 - b) fill preloading can be easily implemented in an open land with limited resources
 - c) basic concept of preloading is to reduce void ratio of geomaterial through consolidation
 - d) All of the above
- 4) The soil type suitable for jet grouting is _____.
 - a) Cohesive soil
 - b) Cohesionless soil
 - c) Clay
 - d) All of the above
- 5) Grouting pressure is generally limited (in kPa) up to _____.
 - a) 1.0
 - b) 5.0
 - c) 20
 - d) 50
- 6) Liquefaction occurs in soil when _____.
 - a) Effective stress remain unchanged
 - b) Effective stress increases
 - c) Effective stress reduces to zero
 - d) None of the above
- 7) Ground heave occur in soil because of _____.
 - a) Water
 - b) Expansive soil
 - c) Froze soil
 - d) All of these

- 8) The incorrect statement about effects of compaction of soil is:
- a) Compaction increases shear and bearing strength of soil
 - b) Compaction increases the permeability of soil
 - c) Compaction increases the frictional characteristic of soil
 - d) Compaction decreases the compressibility of soil
- 9) The performance of compaction equipment depends upon _____.
- a) Soil type
 - b) Water type
 - c) Particle size Distribution
 - d) All of the above
- 10) In compaction test, if the compacting effort is increased, it will result in _____.
- a) No change in maximum dry density and decrease in OMC
 - b) Increase in maximum dry density and OMC
 - c) Increase in maximum dry density and OMC remain unchanged
 - d) Increase in maximum dry density and decrease in OMC
- 11) Design parameter for Rapid Impact compaction are:
- a) Depth of improvement
 - b) Geomaterial type
 - c) Distance to the existing structures
 - d) All of the above
- 12) The equipment used for vibro-compaction includes:
- a) crane
 - b) hydraulic vibrator
 - c) air compressor
 - d) All of the above
- 13) Displacement method of Deep replacement is suitable for:
- a) cohesive soil
 - b) cohesion less soil
 - c) Both a & b
 - d) None of the above
- 14) For displacement techniques the incorrect method from the following is _____.
- a) vibro-casing
 - b) dynamic replacement
 - c) vibro-probe
 - d) vibro-displacement

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

Q.2 Attempt the following questions.

- | | | |
|----|---------------------------------------------------------------------------------------------|----|
| a) | State the objectives of ground improvement. | 07 |
| b) | Explain the factors to be consider in the selection of the best soil improvement technique. | 07 |

Q.3 Attempt the following questions.

- | | | |
|----|---------------------------------------------------------|----|
| a) | Explain aims of mechanical modification. | 07 |
| b) | Explain pre loading with sand drains and fabric drains. | 07 |

Q.4 Attempt the following questions.

- | | | |
|----|--------------------------------------------------------------------------------------|----|
| a) | Explain purpose of dewatering during construction stage and post construction stage. | 07 |
| b) | What are the advantages and limitations of Electro osmotic method? | 07 |

Section – II

Q.5 Attempt the following questions.

- | | | |
|----|----------------------------------------------------------|----|
| a) | Write a detailed note on methods of heating soil insitu. | 07 |
| b) | Explain micro piling with neat sketch. | 07 |

Q.6 Attempt the following questions.

- | | | |
|----|----------------------------------------------------------|----|
| a) | Explain types of admixtures used for lime stabilization. | 07 |
| b) | Explain design of soil cement mixtures. | 07 |

Q.7 Attempt the following questions.

- | | | |
|----|-------------------------------------------------------------------------------|----|
| a) | What are the different types of bridges plate girders? Explain one in detail. | 07 |
| b) | What are the advantages and limitations of reinforced earth retaining walls. | 07 |

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) In compaction test, if the compacting effort is increased, it will result in _____.
 - a) No change in maximum dry density and decrease in OMC
 - b) Increase in maximum dry density and OMC
 - c) Increase in maximum dry density and OMC remain unchanged
 - d) Increase in maximum dry density and decrease in OMC
- 2) Design parameter for Rapid Impact compaction are:
 - a) Depth of improvement
 - b) Geomaterial type
 - c) Distance to the existing structures
 - d) All of the above
- 3) The equipment used for vibro-compaction includes:

a) crane	b) hydraulic vibrator
c) air compressor	d) All of the above
- 4) Displacement method of Deep replacement is suitable for:

a) cohesive soil	b) cohesion less soil
c) Both a & b	d) None of the above
- 5) For displacement techniques the incorrect method from the following is _____.

a) vibro-casing	b) dynamic replacement
c) vibro-probe	d) vibro-displacement
- 6) In electro-osmosis method, when direct current is applied to the electrodes, the soil water will _____.
 - a) travel from positive electrode to negative electrode
 - b) travel from negative electrode to positive electrode
 - c) move towards the center between the electrodes
 - d) not be affected by the current
- 7) Select the correct method to control groundwater is/are:

a) Drainage	b) Dewatering
c) Barrier	d) All of the above

- 8) Choose the correct statement for the ground improvement by preloading technique:
- a) preloading is especially used for low permeable geomaterial
 - b) fill preloading can be easily implemented in an open land with limited resources
 - c) basic concept of preloading is to reduce void ratio of geomaterial through consolidation
 - d) All of the above
- 9) The soil type suitable for jet grouting is _____.
- a) Cohesive soil
 - b) Cohesionless soil
 - c) Clay
 - d) All of the above
- 10) Grouting pressure is generally limited (in kPa) up to _____.
- a) 1.0
 - b) 5.0
 - c) 20
 - d) 50
- 11) Liquefaction occurs in soil when _____.
- a) Effective stress remain unchanged
 - b) Effective stress increases
 - c) Effective stress reduces to zero
 - d) None of the above
- 12) Ground heave occur in soil because of _____.
- a) Water
 - b) Expansive soil
 - c) Froze soil
 - d) All of these
- 13) The incorrect statement about effects of compaction of soil is:
- a) Compaction increases shear and bearing strength of soil
 - b) Compaction increases the permeability of soil
 - c) Compaction increases the frictional characteristic of soil
 - d) Compaction decreases the compressibility of soil
- 14) The performance of compaction equipment depends upon _____.
- a) Soil type
 - b) Water type
 - c) Particle size Distribution
 - d) All of the above

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Ground Improvement Techniques (197042820)

Day & Date: Friday, 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

Q.2 Attempt the following questions.

- | | |
|------------------------------------------------------------------------------------------------|-----------|
| a) State the objectives of ground improvement. | 07 |
| b) Explain the factors to be consider in the selection of the best soil improvement technique. | 07 |

Q.3 Attempt the following questions.

- | | |
|------------------------------------------------------------|-----------|
| a) Explain aims of mechanical modification. | 07 |
| b) Explain pre loading with sand drains and fabric drains. | 07 |

Q.4 Attempt the following questions.

- | | |
|-----------------------------------------------------------------------------------------|-----------|
| a) Explain purpose of dewatering during construction stage and post construction stage. | 07 |
| b) What are the advantages and limitations of Electro osmotic method? | 07 |

Section – II

Q.5 Attempt the following questions.

- | | |
|-------------------------------------------------------------|-----------|
| a) Write a detailed note on methods of heating soil insitu. | 07 |
| b) Explain micro piling with neat sketch. | 07 |

Q.6 Attempt the following questions.

- | | |
|-------------------------------------------------------------|-----------|
| a) Explain types of admixtures used for lime stabilization. | 07 |
| b) Explain design of soil cement mixtures. | 07 |

Q.7 Attempt the following questions.

- | | |
|----------------------------------------------------------------------------------|-----------|
| a) What are the different types of bridges plate girders? Explain one in detail. | 07 |
| b) What are the advantages and limitations of reinforced earth retaining walls. | 07 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following is not a component of the rail?

a) Ballast	b) Foot
c) Web	d) Head
- 2) Stretcher bar is provided _____.
 - a) To permit lateral movement of the tongue rail
 - b) To maintain the two tongue rails at the exact distance
 - c) To ensure exact gauge at the toe of the switch as well as the nose of crossing
 - d) To prevent any vertical movement between the wing rail and nose of crossing
- 3) The standard length of rail of BG and MG track is _____.

a) 13 & 12m	b) 12 & 12m
c) 12 & 13m	d) None of above
- 4) The gradient on which an additional engine is required to negotiate the gradient, is called _____.

a) Momentum gradient	b) Pusher gradient
c) Ruling gradient	d) Steep gradient
- 5) For providing the required tilt of rails, adzing of wooden sleepers, is done for _____.

a) Bull headed rails	b) Double headed rails
c) Flat footed rails	d) Any type of rails
- 6) Cant deficiency occur when a vehicle travels around a curve at _____.
 - a) Equilibrium speed
 - b) Speeds higher than equilibrium speed
 - c) Speeds lower than equilibrium speed
 - d) Booked speed
- 7) The place where a railway line and a road cross each other at the same level, is known as _____.

a) Cross over	b) Railway junction
c) Road junction	d) Level crossing

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and solve any two questions from remaining questions Q. No. 3 to Q. No. 5.
2) Q. No. 6 is compulsory and solve any two questions from remaining questions Q. No. 7 to Q. No. 9.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2** Calculate max permissible train load that can be pulled by locomotive with Four pairs of driving wheels with axle load of 24 tonne for BG track with speed of 80 Km/h, $f = (1/6)$. **08**
Also calculate the reduction in the speed, if the train has to climb up a gradient of 1 in 200.
If train climbs up the gradient with a 2 degree curve, then what would be reduction in the speed?
- Q.3 Answer any two questions.** **10**
a) Explain the role of railway engineering in national and global development.
b) Define permanent way with neat sketch. Explain each component of permanent way.
c) Draw a systematic layout of a right hand turnout and name the different parts.
- Q.4 Answer any two questions.** **10**
a) Explain various methods and steps for the construction and maintenance of railway track.
b) Explain different types of signals.
c) Write a short note on Modern Indian Railways.
- Q.5** What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch. **10**

Section – II

- Q.6** Length of run way under standard condition is 1620m, the airport site has an elevation of 230m, reference temperature is 32.94°C. If the runway is to be constructed with effective gradient of 0.2%, determine corrected runway length. **08**

Q.7 Answer any two questions.

- a) A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
- Wheel base - 17.70 m
 - Tread of main loading gear - 6.62 m
 - Turning speed - 40 kmph
 - Coefficient of friction between tyre and pavement surface - 0.13 and width of taxiway - 22.5 m
- b) Draw cross-section of Airport showing all component parts and explain it in detail.
- c) The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?

Q.8 Answer any two questions.**10**

- Write short note on wharf and jetties with neat sketches.
- What are the factors to be considered while selecting site for harbor?
- What are fenders? Why are they used? Describe various types of fenders with sketches.

- Q.9** Explain the role of Airport engineering in national and global development. Also state the contribution of Dock and harbors in national development of country.

10

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) As per ICAO, the minimum width of safety area for instrumental runway should be _____.

a) 75m	b) 150m
c) 300m	d) 450m
- 2) The runway length after correcting elevation and temperature is 2845m. If the effective gradient on runway is 0.5% then revised runway length will be _____.

a) 2845m	b) 2910m
c) 3030m	d) 3130m
- 3) Calm period is the percentage of time during which wind intensity is less than _____.

a) 4.8 kmph	b) 6.4 kmph
c) 8 kmph	d) 9.6 kmph
- 4) The minimum width of clearway is _____.

a) 50m	b) 100m
c) 150m	d) 250m
- 5) The width of the entrances of the harbors is restricted to _____.

a) 100 m	b) 125 m
c) 150 m	d) 180 m
- 6) If F is the fetch, the straight-line distance of open water available in kilometers, the height of the wave in meters is _____.

a) 0.15 F	b) 0.20 F
c) 0.28 F	d) 0.34 F
- 7) In a wet dock system, _____.
 - a) Minimum required depth of water for the vessels is maintained
 - b) Entrance locks are provided with massive gates
 - c) The locks of dock gate are operated by means of heavy bascule bridges and connected machinery
 - d) All of above

Seat No.	
-------------	--

Set

Q

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and solve any two questions from remaining questions Q. No. 3 to Q. No. 5.
2) Q. No. 6 is compulsory and solve any two questions from remaining questions Q. No. 7 to Q. No. 9.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2** Calculate max permissible train load that can be pulled by locomotive with Four pairs of driving wheels with axle load of 24 tonne for BG track with speed of 80 Km/h, $f = (1/6)$. **08**
Also calculate the reduction in the speed, if the train has to climb up a gradient of 1 in 200.
If train climbs up the gradient with a 2 degree curve, then what would be reduction in the speed?
- Q.3 Answer any two questions.** **10**
a) Explain the role of railway engineering in national and global development.
b) Define permanent way with neat sketch. Explain each component of permanent way.
c) Draw a systematic layout of a right hand turnout and name the different parts.
- Q.4 Answer any two questions.** **10**
a) Explain various methods and steps for the construction and maintenance of railway track.
b) Explain different types of signals.
c) Write a short note on Modern Indian Railways.
- Q.5** What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch. **10**

Section – II

- Q.6** Length of run way under standard condition is 1620m, the airport site has an elevation of 230m, reference temperature is 32.94°C. If the runway is to be constructed with effective gradient of 0.2%, determine corrected runway length. **08**

Q.7 Answer any two questions.

- a) A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
- Wheel base - 17.70 m
 - Tread of main loading gear - 6.62 m
 - Turning speed - 40 kmph
 - Coefficient of friction between tyre and pavement surface - 0.13 and width of taxiway - 22.5 m
- b) Draw cross-section of Airport showing all component parts and explain it in detail.
- c) The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?

Q.8 Answer any two questions.**10**

- Write short note on wharf and jetties with neat sketches.
- What are the factors to be considered while selecting site for harbor?
- What are fenders? Why are they used? Describe various types of fenders with sketches.

Q.9 Explain the role of Airport engineering in national and global development. Also state the contribution of Dock and harbors in national development of country.**10**

- 8) The gradient on which an additional engine is required to negotiate the gradient, is called _____.
- a) Momentum gradient b) Pusher gradient
c) Ruling gradient d) Steep gradient
- 9) For providing the required tilt of rails, adzing of wooden sleepers, is done for _____.
- a) Bull headed rails b) Double headed rails
c) Flat footed rails d) Any type of rails
- 10) Cant deficiency occur when a vehicle travels around a curve at _____.
- a) Equilibrium speed
b) Speeds higher than equilibrium speed
c) Speeds lower than equilibrium speed
d) Booked speed
- 11) The place where a railway line and a road cross each other at the same level, is known as _____.
- a) Cross over b) Railway junction
c) Road junction d) Level crossing
- 12) As per ICAO, the minimum width of safety area for instrumental runway should be _____.
- a) 75m b) 150m
c) 300m d) 450m
- 13) The runway length after correcting elevation and temperature is 2845m. If the effective gradient on runway is 0.5% then revised runway length will be _____.
- a) 2845m b) 2910m
c) 3030m d) 3130m
- 14) Calm period is the percentage of time during which wind intensity is less than _____.
- a) 4.8 kmph b) 6.4 kmph
c) 8 kmph d) 9.6 kmph

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and solve any two questions from remaining questions Q. No. 3 to Q. No. 5.
2) Q. No. 6 is compulsory and solve any two questions from remaining questions Q. No. 7 to Q. No. 9.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2** Calculate max permissible train load that can be pulled by locomotive with Four pairs of driving wheels with axle load of 24 tonne for BG track with speed of 80 Km/h, $f = (1/6)$. **08**
Also calculate the reduction in the speed, if the train has to climb up a gradient of 1 in 200.
If train climbs up the gradient with a 2 degree curve, then what would be reduction in the speed?
- Q.3 Answer any two questions.** **10**
a) Explain the role of railway engineering in national and global development.
b) Define permanent way with neat sketch. Explain each component of permanent way.
c) Draw a systematic layout of a right hand turnout and name the different parts.
- Q.4 Answer any two questions.** **10**
a) Explain various methods and steps for the construction and maintenance of railway track.
b) Explain different types of signals.
c) Write a short note on Modern Indian Railways.
- Q.5** What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch. **10**

Section – II

- Q.6** Length of run way under standard condition is 1620m, the airport site has an elevation of 230m, reference temperature is 32.94°C. If the runway is to be constructed with effective gradient of 0.2%, determine corrected runway length. **08**

Q.7 Answer any two questions.

- a) A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
- Wheel base - 17.70 m
 - Tread of main loading gear - 6.62 m
 - Turning speed - 40 kmph
 - Coefficient of friction between tyre and pavement surface - 0.13 and width of taxiway - 22.5 m
- b) Draw cross-section of Airport showing all component parts and explain it in detail.
- c) The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?

Q.8 Answer any two questions.**10**

- Write short note on wharf and jetties with neat sketches.
- What are the factors to be considered while selecting site for harbor?
- What are fenders? Why are they used? Describe various types of fenders with sketches.

Q.9 Explain the role of Airport engineering in national and global development. Also state the contribution of Dock and harbors in national development of country.**10**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Cant deficiency occur when a vehicle travels around a curve at _____.
 - a) Equilibrium speed
 - b) Speeds higher than equilibrium speed
 - c) Speeds lower than equilibrium speed
 - d) Booked speed
- 2) The place where a railway line and a road cross each other at the same level, is known as _____.
 - a) Cross over
 - b) Railway junction
 - c) Road junction
 - d) Level crossing
- 3) As per ICAO, the minimum width of safety area for instrumental runway should be _____.
 - a) 75m
 - b) 150m
 - c) 300m
 - d) 450m
- 4) The runway length after correcting elevation and temperature is 2845m. If the effective gradient on runway is 0.5% then revised runway length will be _____.
 - a) 2845m
 - b) 2910m
 - c) 3030m
 - d) 3130m
- 5) Calm period is the percentage of time during which wind intensity is less than _____.
 - a) 4.8 kmph
 - b) 6.4 kmph
 - c) 8 kmph
 - d) 9.6 kmph
- 6) The minimum width of clearway is _____.
 - a) 50m
 - b) 100m
 - c) 150m
 - d) 250m
- 7) The width of the entrances of the harbors is restricted to _____.
 - a) 100 m
 - b) 125 m
 - c) 150 m
 - d) 180 m

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Railway & Harbour Engineering (197042801)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 is compulsory and solve any two questions from remaining questions Q. No. 3 to Q. No. 5.
2) Q. No. 6 is compulsory and solve any two questions from remaining questions Q. No. 7 to Q. No. 9.
3) Figures to the right indicate full marks.
4) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2** Calculate max permissible train load that can be pulled by locomotive with Four pairs of driving wheels with axle load of 24 tonne for BG track with speed of 80 Km/h, $f = (1/6)$. **08**
Also calculate the reduction in the speed, if the train has to climb up a gradient of 1 in 200.
If train climbs up the gradient with a 2 degree curve, then what would be reduction in the speed?
- Q.3 Answer any two questions.** **10**
a) Explain the role of railway engineering in national and global development.
b) Define permanent way with neat sketch. Explain each component of permanent way.
c) Draw a systematic layout of a right hand turnout and name the different parts.
- Q.4 Answer any two questions.** **10**
a) Explain various methods and steps for the construction and maintenance of railway track.
b) Explain different types of signals.
c) Write a short note on Modern Indian Railways.
- Q.5** What are the essential features of semaphore signal? Explain the working of semaphore signal in detail with sketch. **10**

Section – II

- Q.6** Length of run way under standard condition is 1620m, the airport site has an elevation of 230m, reference temperature is 32.94°C. If the runway is to be constructed with effective gradient of 0.2%, determine corrected runway length. **08**

Q.7 Answer any two questions.

- a) A taxiway is to be designed for operating an aircraft which has following characteristics.
Determine turning radius of taxiway
- Wheel base - 17.70 m
 - Tread of main loading gear - 6.62 m
 - Turning speed - 40 kmph
 - Coefficient of friction between tyre and pavement surface - 0.13 and width of taxiway - 22.5 m
- b) Draw cross-section of Airport showing all component parts and explain it in detail.
- c) The data for the hottest month of year is the year of maximum daily temperature is 43.72°C and mean of average daily temperature is 20.32°C then what is the airport reference temperature?

Q.8 Answer any two questions.**10**

- Write short note on wharf and jetties with neat sketches.
- What are the factors to be considered while selecting site for harbor?
- What are fenders? Why are they used? Describe various types of fenders with sketches.

Q.9 Explain the role of Airport engineering in national and global development. Also state the contribution of Dock and harbors in national development of country.**10**

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING****Open Elective-III: Economic Policies in India (197042802)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative:**14**

- 1) Which of the following statements is true about the occupational structure of the Indian economy during British rule?
 - a) The occupational structure of the Indian economy during the British rule was stagnant
 - b) The occupational structure of the Indian economy during the British rule was underdeveloped
 - c) The occupational structure of the Indian economy during the British rule was both stagnant and underdeveloped
 - d) The occupational structure of the Indian economy during British rule was developed
- 2) Which of the following sectors was the major contributor to the Gross Domestic Product (GDP) during the British rule in India?
 - a) Primary sector
 - b) Secondary sector
 - c) Tertiary sector
 - d) None of the above
- 3) Which of the following is included in the National Income of a country?
 - a) Rent
 - b) Interest
 - c) Wages
 - d) Rent, Interest, Wages, Salary, Profits
- 4) The term economic growth is explained by _____.
 - a) Structural changes in the economy
 - b) Increase in the per capita production
 - c) Increase in the per capita income
 - d) All of the above
- 5) The purchasing power of money varies _____.
 - a) Directly with the volume of employment
 - b) Inversely with the price level
 - c) Directly with the interest rate
 - d) Directly with the price level

- 6) Which of the following activities is not included in the calculation of the national income of a country?
- A maid working for a family on a full-time basis
 - A lawyer conducting their law practice
 - A housewife performing housework
 - A dispensary rendering medical services
- 7) Which of the following is not a characteristic of the Indian economy on the eve of India's independence?
- Small and fragmented land holdings
 - Use of outdated and old technology
 - Commercial farming
 - Low level of productivity
- 8) The industrial license was abolished for most industries except _____ during the 1991 reforms.
- Steel
 - Food processing
 - Liquor
 - All of the above
- 9) What was the primary outcome of the liberalisation and privatisation initiatives under the New Economic Policy (NEP) in 1991, followed by the Indian government?
- Fiscal policy reforms
 - Globalisation
 - Monetary policy reforms
 - None of the above
- 10) Which of the following arguments are made in favour of privatisation of a country's economy?
- It helps to revive sick public sector units
 - It creates a competitive environment for businesses
 - It helps to protect the sovereignty of a consumer
 - All the above
- 11) Which of the following is a step that the central bank will take to increase the overall availability of credit?
- It will sell the government securities in the market
 - It will buy more government securities from the market
 - It will raise the reverse repo rate
 - It will raise the repo rate
- 12) Which of the following statements is true about demand deposits?
- It includes both fixed deposits and current account deposits.
 - It includes both savings account deposits and fixed deposits.
 - It includes both current account deposits and savings account deposits.
 - It includes fixed deposits, current account deposits and savings account
- 13) Which of the statements gives an accurate picture of the effect of the increase in the repo rate?
- The money supply in the country will decrease
 - The money supply in the country will increase
 - The money supply in the country will increase initially and decrease
 - There is no effect on the money supply in the country
- 14) How many members are present in the WTO?
- 207
 - 195
 - 160
 - 164

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) In Section-I, Q. No. 2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
2) In Section-II, Q. No. 6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7, 8 & 9).
3) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain in brief salient features eleventh Five year plan. **04**
b) Write in detail why economic policies were required to reform. **04**
c) What is mean by inflation? Explain the causes of inflation. **04**
- Q.3** a) Explain in detail rural credit system. **04**
b) Explain effect of green revolution on Indian economy. **04**
- Q.4** a) Write a note on Economic condition of India During the colonial government? **04**
b) Explain in detail about economic reforms in India. **04**
- Q.5** a) What is mean by unemployment? What are the causes and effects of unemployment? **04**
b) Write a short note on WTO and agriculture. **04**

Section – II

- Q.6** a) What is mean by SEBI? Explain in detail. **05**
b) Write short note on 13th finance commission. **05**
- Q.7** a) What is mean by parallel economy? Explain in detail. **05**
b) How balance of payment is maintained by RBI. **04**
- Q.8** a) What is mean by FDI? Explain in detail. **05**
b) Explain in detail performance of industrial sector before the economic reform period. **04**
- Q.9** a) What is role of Panchayat and Pressure groups in implementation of economic policies? **05**
b) Explain role of public sector units in Indian economy. **04**

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative:

14

- 1) The industrial license was abolished for most industries except _____ during the 1991 reforms.

a) Steel	b) Food processing
c) Liquor	d) All of the above
- 2) What was the primary outcome of the liberalisation and privatisation initiatives under the New Economic Policy (NEP) in 1991, followed by the Indian government?

a) Fiscal policy reforms	b) Globalisation
c) Monetary policy reforms	d) None of the above
- 3) Which of the following arguments are made in favour of privatisation of a country's economy?
 - a) It helps to revive sick public sector units
 - b) It creates a competitive environment for businesses
 - c) It helps to protect the sovereignty of a consumer
 - d) All the above
- 4) Which of the following is a step that the central bank will take to increase the overall availability of credit?
 - a) It will sell the government securities in the market
 - b) It will buy more government securities from the market
 - c) It will raise the reverse repo rate
 - d) It will raise the repo rate
- 5) Which of the following statements is true about demand deposits?
 - a) It includes both fixed deposits and current account deposits.
 - b) It includes both savings account deposits and fixed deposits.
 - c) It includes both current account deposits and savings account deposits.
 - d) It includes fixed deposits, current account deposits and savings account

- 6) Which of the statements gives an accurate picture of the effect of the increase in the repo rate?
- a) The money supply in the country will decrease
 - b) The money supply in the country will increase
 - c) The money supply in the country will increase initially and decrease
 - d) There is no effect on the money supply in the country
- 7) How many members are present in the WTO?
- a) 207
 - b) 195
 - c) 160
 - d) 164
- 8) Which of the following statements is true about the occupational structure of the Indian economy during British rule?
- a) The occupational structure of the Indian economy during the British rule was stagnant
 - b) The occupational structure of the Indian economy during the British rule was underdeveloped
 - c) The occupational structure of the Indian economy during the British rule was both stagnant and underdeveloped
 - d) The occupational structure of the Indian economy during British rule was developed
- 9) Which of the following sectors was the major contributor to the Gross Domestic Product (GDP) during the British rule in India?
- a) Primary sector
 - b) Secondary sector
 - c) Tertiary sector
 - d) None of the above
- 10) Which of the following is included in the National Income of a country?
- a) Rent
 - b) Interest
 - c) Wages
 - d) Rent, Interest, Wages, Salary, Profits
- 11) The term economic growth is explained by _____.
- a) Structural changes in the economy
 - b) Increase in the per capita production
 - c) Increase in the per capita income
 - d) All of the above
- 12) The purchasing power of money varies _____.
- a) Directly with the volume of employment
 - b) Inversely with the price level
 - c) Directly with the interest rate
 - d) Directly with the price level
- 13) Which of the following activities is not included in the calculation of the national income of a country?
- a) A maid working for a family on a full-time basis
 - b) A lawyer conducting their law practice
 - c) A housewife performing housework
 - d) A dispensary rendering medical services

- 14)** Which of the following is not a characteristic of the Indian economy on the eve of India's independence?
- a) Small and fragmented land holdings
 - b) Use of outdated and old technology
 - c) Commercial farming
 - d) Low level of productivity

Seat No.	
----------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) In Section-I, Q. No. 2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
2) In Section-II, Q. No. 6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7, 8 & 9).
3) Figures to right indicate full marks.

Section – I

- | | | |
|------------|------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain in brief salient features eleventh Five year plan. | 04 |
| | b) Write in detail why economic policies were required to reform. | 04 |
| | c) What is mean by inflation? Explain the causes of inflation. | 04 |
| Q.3 | a) Explain in detail rural credit system. | 04 |
| | b) Explain effect of green revolution on Indian economy. | 04 |
| Q.4 | a) Write a note on Economic condition of India During the colonial government? | 04 |
| | b) Explain in detail about economic reforms in India. | 04 |
| Q.5 | a) What is mean by unemployment? What are the causes and effects of unemployment? | 04 |
| | b) Write a short note on WTO and agriculture. | 04 |

Section – II

- | | | |
|------------|-------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What is mean by SEBI? Explain in detail. | 05 |
| | b) Write short note on 13 th finance commission. | 05 |
| Q.7 | a) What is mean by parallel economy? Explain in detail. | 05 |
| | b) How balance of payment is maintained by RBI. | 04 |
| Q.8 | a) What is mean by FDI? Explain in detail. | 05 |
| | b) Explain in detail performance of industrial sector before the economic reform period. | 04 |
| Q.9 | a) What is role of Panchayat and Pressure groups in implementation of economic policies? | 05 |
| | b) Explain role of public sector units in Indian economy. | 04 |

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative:

14

- 1) Which of the following is a step that the central bank will take to increase the overall availability of credit?
 - a) It will sell the government securities in the market
 - b) It will buy more government securities from the market
 - c) It will raise the reverse repo rate
 - d) It will raise the repo rate
- 2) Which of the following statements is true about demand deposits?
 - a) It includes both fixed deposits and current account deposits.
 - b) It includes both savings account deposits and fixed deposits.
 - c) It includes both current account deposits and savings account deposits.
 - d) It includes fixed deposits, current account deposits and savings account
- 3) Which of the statements gives an accurate picture of the effect of the increase in the repo rate?
 - a) The money supply in the country will decrease
 - b) The money supply in the country will increase
 - c) The money supply in the country will increase initially and decrease
 - d) There is no effect on the money supply in the country
- 4) How many members are present in the WTO?

a) 207	b) 195
c) 160	d) 164
- 5) Which of the following statements is true about the occupational structure of the Indian economy during British rule?
 - a) The occupational structure of the Indian economy during the British rule was stagnant
 - b) The occupational structure of the Indian economy during the British rule was underdeveloped
 - c) The occupational structure of the Indian economy during the British rule was both stagnant and underdeveloped
 - d) The occupational structure of the Indian economy during British rule was developed

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) In Section-I, Q. No. 2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
2) In Section-II, Q. No. 6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7, 8 & 9).
3) Figures to right indicate full marks.

Section – I

- | | | |
|------------|------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain in brief salient features eleventh Five year plan. | 04 |
| | b) Write in detail why economic policies were required to reform. | 04 |
| | c) What is mean by inflation? Explain the causes of inflation. | 04 |
| Q.3 | a) Explain in detail rural credit system. | 04 |
| | b) Explain effect of green revolution on Indian economy. | 04 |
| Q.4 | a) Write a note on Economic condition of India During the colonial government? | 04 |
| | b) Explain in detail about economic reforms in India. | 04 |
| Q.5 | a) What is mean by unemployment? What are the causes and effects of unemployment? | 04 |
| | b) Write a short note on WTO and agriculture. | 04 |

Section – II

- | | | |
|------------|-------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What is mean by SEBI? Explain in detail. | 05 |
| | b) Write short note on 13 th finance commission. | 05 |
| Q.7 | a) What is mean by parallel economy? Explain in detail. | 05 |
| | b) How balance of payment is maintained by RBI. | 04 |
| Q.8 | a) What is mean by FDI? Explain in detail. | 05 |
| | b) Explain in detail performance of industrial sector before the economic reform period. | 04 |
| Q.9 | a) What is role of Panchayat and Pressure groups in implementation of economic policies? | 05 |
| | b) Explain role of public sector units in Indian economy. | 04 |

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative:**14**

- 1) Which of the following activities is not included in the calculation of the national income of a country?
 - a) A maid working for a family on a full-time basis
 - b) A lawyer conducting their law practice
 - c) A housewife performing housework
 - d) A dispensary rendering medical services
- 2) Which of the following is not a characteristic of the Indian economy on the eve of India's independence?
 - a) Small and fragmented land holdings
 - b) Use of outdated and old technology
 - c) Commercial farming
 - d) Low level of productivity
- 3) The industrial license was abolished for most industries except _____ during the 1991 reforms.

a) Steel	b) Food processing
c) Liquor	d) All of the above
- 4) What was the primary outcome of the liberalisation and privatisation initiatives under the New Economic Policy (NEP) in 1991, followed by the Indian government?

a) Fiscal policy reforms	b) Globalisation
c) Monetary policy reforms	d) None of the above
- 5) Which of the following arguments are made in favour of privatisation of a country's economy?
 - a) It helps to revive sick public sector units
 - b) It creates a competitive environment for businesses
 - c) It helps to protect the sovereignty of a consumer
 - d) All the above

- 6) Which of the following is a step that the central bank will take to increase the overall availability of credit?
- It will sell the government securities in the market
 - It will buy more government securities from the market
 - It will raise the reverse repo rate
 - It will raise the repo rate
- 7) Which of the following statements is true about demand deposits?
- It includes both fixed deposits and current account deposits.
 - It includes both savings account deposits and fixed deposits.
 - It includes both current account deposits and savings account deposits.
 - It includes fixed deposits, current account deposits and savings account
- 8) Which of the statements gives an accurate picture of the effect of the increase in the repo rate?
- The money supply in the country will decrease
 - The money supply in the country will increase
 - The money supply in the country will increase initially and decrease
 - There is no effect on the money supply in the country
- 9) How many members are present in the WTO?
- | | |
|--------|--------|
| a) 207 | b) 195 |
| c) 160 | d) 164 |
- 10) Which of the following statements is true about the occupational structure of the Indian economy during British rule?
- The occupational structure of the Indian economy during the British rule was stagnant
 - The occupational structure of the Indian economy during the British rule was underdeveloped
 - The occupational structure of the Indian economy during the British rule was both stagnant and underdeveloped
 - The occupational structure of the Indian economy during British rule was developed
- 11) Which of the following sectors was the major contributor to the Gross Domestic Product (GDP) during the British rule in India?
- | | |
|--------------------|----------------------|
| a) Primary sector | b) Secondary sector |
| c) Tertiary sector | d) None of the above |
- 12) Which of the following is included in the National Income of a country?
- Rent
 - Interest
 - Wages
 - Rent, Interest, Wages, Salary, Profits
- 13) The term economic growth is explained by _____.
- Structural changes in the economy
 - Increase in the per capita production
 - Increase in the per capita income
 - All of the above
- 14) The purchasing power of money varies _____.
- Directly with the volume of employment
 - Inversely with the price level
 - Directly with the interest rate
 - Directly with the price level

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Open Elective-III: Economic Policies in India (197042802)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section-I, Q. No. 2 is compulsory and solve any TWO questions from remaining questions (Q. No. 3, 4 & 5).
2) In Section-II, Q. No. 6 is compulsory and solve any TWO questions from remaining questions (Q. No. 7, 8 & 9).
3) Figures to right indicate full marks.

Section – I

- | | | |
|------------|-----------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain in brief salient features eleventh Five year plan. | 04 |
| | b) Write in detail why economic policies were required to reform. | 04 |
| | c) What is mean by inflation? Explain the causes of inflation. | 04 |
| Q.3 | a) Explain in detail rural credit system. | 04 |
| | b) Explain effect of green revolution on Indian economy. | 04 |
| Q.4 | a) Write a note on Economic condition of India During the colonial government? | 04 |
| | b) Explain in detail about economic reforms in India. | 04 |
| Q.5 | a) What is mean by unemployment? What are the causes and effects of unemployment? | 04 |
| | b) Write a short note on WTO and agriculture. | 04 |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What is mean by SEBI? Explain in detail. | 05 |
| | b) Write short note on 13 th finance commission. | 05 |
| Q.7 | a) What is mean by parallel economy? Explain in detail. | 05 |
| | b) How balance of payment is maintained by RBI. | 04 |
| Q.8 | a) What is mean by FDI? Explain in detail. | 05 |
| | b) Explain in detail performance of industrial sector before the economic reform period. | 04 |
| Q.9 | a) What is role of Panchayat and Pressure groups in implementation of economic policies? | 05 |
| | b) Explain role of public sector units in Indian economy. | 04 |

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Practice, Law & Ethics (197042803)

Day & Date: Tuesday, 14-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which of the following stakeholder has the responsibility of formulating standards of practice?
 - a) Government
 - b) Professional Societies
 - c) Standardization Bodies
 - d) All of these
- 2) What is the difference between promoter and Developer?
 - a) Developer build and sell while Promoter deal with land
 - b) Promoter and developer are treated same
 - c) Promoter provides money to developer
 - d) Promoter build and sell while developer deal with land
- 3) To be successful, business ethics training program need to _____.
 - a) focus on personal opinions of employees
 - b) be limited to upper executives
 - c) educate employees on formal ethical frameworks and models of ethical decision making
 - d) promote the use of emotions in making tough ethical decisions
- 4) What among the following elements takes the most direct and immediate set back in a case of conflict of interest by a public official?
 - a) reputation of the officer
 - b) trust that the public holds in the office
 - c) legitimacy of the office
 - d) constitution of India
- 5) An arbitral award _____.
 - a) must relate to the subject-matter of the dispute arbitrated
 - b) must be founded on principle of trust
 - c) both (a) and (b) are correct
 - d) only (a) is correct

- 6) Which act requires employers in industrial establishments to define the conditions of employment?
- The Factories Act, 1948
 - The Industrial Disputes Act, 1947
 - The Industrial Employment Act, 1946
 - The Trade Union Act, 1926
- 7) Which of the following is Rights of a Copyright Owner?
- Publish their work and Perform their work in public
 - Translate and Broadcast their work
 - Prevent others from making unauthorized use of copyrighted work
 - All of the above
- 8) Patent is a _____.
- Transferable property
 - Negotiable property
 - Real property
 - Non-transferable property
- 9) An agreement enforceable by law is: _____.
- A voidable contract
 - A Valid contract / contract
 - A Void
 - A void contract
- 10) Which of the following is an example of conflict of interest?
- An individual who works at 7-11 while also volunteering their time on their days off
 - An individual who is self-employed starting a computer business
 - A person working for Apple and Microsoft at the same time
 - A person working for INTEL
- 11) The first and farthest professional ethics is _____.
- to strive for excellence
 - to take care to environment
 - to serve the needy and poor of the society
 - None of these
- 12) Which among following is not a provision in Indian Factory act _____.
- Health
 - Welfare
 - Minimum Wages
 - Safety
- 13) If a company develops a new technology that improves its main product, what type of intellectual property can they use to stop others from copying their invention?
- Copyright
 - Patents
 - Registered designs
 - Trademarks
- 14) The study of _____, as contrasted with legal, obligations is called ethics.
- Behavior
 - Moral
 - Business
 - all the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Professional Practice, Law & Ethics (197042803)

Day & Date: Tuesday, 14-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Solve any two questions from Section - I
2) Solve any two questions from Section - II
3) Figures to right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain role governed by manufacturer, vendor & service agencies. **07**
b) Explain term profession & and professional body, enlist benefits & disadvantages of joining professional body. **07**
- Q.3** a) Define ethics and enlist & explain its types. **07**
b) Explain terms Professional responsibility & Conflict of interest. **07**
- Q.4** a) Write note on tenders and Request for proposals. **07**
b) Write note on wrong practices in contracting. **07**

Section – II

- Q.5** a) Explain the concept of arbitration tribunal. **07**
b) Distinguish between Conciliation, Negotiation, Mediation and Arbitration. **07**
- Q.6** a) Explain workmen compensation act, 1923. **07**
b) Discuss methods of engaging labor. **07**
- Q.7** a) Explain process of obtaining/filing the patent. **07**
b) Write note on ownership of copyrights and assignments. **07**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Practice, Law & Ethics (197042803)**

Day & Date: Tuesday, 14-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Patent is a _____.
 - a) Transferable property
 - b) Negotiable property
 - c) Real property
 - d) Non-transferable property
- 2) An agreement enforceable by law is: _____.
 - a) A voidable contract
 - b) A Valid contract / contract
 - c) A Void
 - d) A void contract
- 3) Which of the following is an example of conflict of interest?
 - a) An individual who works at 7-11 while also volunteering their time on their days off
 - b) An individual who is self-employed starting a computer business
 - c) A person working for Apple and Microsoft at the same time
 - d) A person working for INTEL
- 4) The first and farthest professional ethics is _____.
 - a) to strive for excellence
 - b) to take care to environment
 - c) to serve the needy and poor of the society
 - d) None of these
- 5) Which among following is not a provision in Indian Factory act _____.
 - a) Health
 - b) Welfare
 - c) Minimum Wages
 - d) Safety
- 6) If a company develops a new technology that improves its main product, what type of intellectual property can they use to stop others from copying their invention?
 - a) Copyright
 - b) Patents
 - c) Registered designs
 - d) Trademarks
- 7) The study of _____, as contrasted with legal, obligations is called ethics.
 - a) Behavior
 - b) Moral
 - c) Business
 - d) all the above

- 8) Which of the following stakeholder has the responsibility of formulating standards of practice?
- a) Government
 - b) Professional Societies
 - c) Standardization Bodies
 - d) All of these
- 9) What is the difference between promoter and Developer?
- a) Developer build and sell while Promoter deal with land
 - b) Promoter and developer are treated same
 - c) Promoter provides money to developer
 - d) Promoter build and sell while developer deal with land
- 10) To be successful, business ethics training program need to _____.
- a) focus on personal opinions of employees
 - b) be limited to upper executives
 - c) educate employees on formal ethical frameworks and models of ethical decision making
 - d) promote the use of emotions in making tough ethical decisions
- 11) What among the following elements takes the most direct and immediate set back in a case of conflict of interest by a public official?
- a) reputation of the officer
 - b) trust that the public holds in the office
 - c) legitimacy of the office
 - d) constitution of India
- 12) An arbitral award _____.
- a) must relate to the subject-matter of the dispute arbitrated
 - b) must be founded on principle of trust
 - c) both (a) and (b) are correct
 - d) only (a) is correct
- 13) Which act requires employers in industrial establishments to define the conditions of employment?
- a) The Factories Act, 1948
 - b) The Industrial Disputes Act, 1947
 - c) The Industrial Employment Act, 1946
 - d) The Trade Union Act, 1926
- 14) Which of the following is Rights of a Copyright Owner?
- a) Publish their work and Perform their work in public
 - b) Translate and Broadcast their work
 - c) Prevent others from making unauthorized use of copyrighted work
 - d) All of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Practice, Law & Ethics (197042803)

Day & Date: Tuesday, 14-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from Section - I
2) Solve any two questions from Section - II
3) Figures to right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain role governed by manufacturer, vendor & service agencies. **07**
b) Explain term profession & and professional body, enlist benefits & disadvantages of joining professional body. **07**
- Q.3** a) Define ethics and enlist & explain its types. **07**
b) Explain terms Professional responsibility & Conflict of interest. **07**
- Q.4** a) Write note on tenders and Request for proposals. **07**
b) Write note on wrong practices in contracting. **07**

Section – II

- Q.5** a) Explain the concept of arbitration tribunal. **07**
b) Distinguish between Conciliation, Negotiation, Mediation and Arbitration. **07**
- Q.6** a) Explain workmen compensation act, 1923. **07**
b) Discuss methods of engaging labor. **07**
- Q.7** a) Explain process of obtaining/filing the patent. **07**
b) Write note on ownership of copyrights and assignments. **07**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Practice, Law & Ethics (197042803)**

Day & Date: Tuesday, 14-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) The first and farthest professional ethics is _____.
a) to strive for excellence
b) to take care to environment
c) to serve the needy and poor of the society
d) None of these
- 2) Which among following is not a provision in Indian Factory act _____.
a) Health
b) Welfare
c) Minimum Wages
d) Safety
- 3) If a company develops a new technology that improves its main product, what type of intellectual property can they use to stop others from copying their invention?
a) Copyright
b) Patents
c) Registered designs
d) Trademarks
- 4) The study of _____, as contrasted with legal, obligations is called ethics.
a) Behavior
b) Moral
c) Business
d) all the above
- 5) Which of the following stakeholder has the responsibility of formulating standards of practice?
a) Government
b) Professional Societies
c) Standardization Bodies
d) All of these
- 6) What is the difference between promoter and Developer?
a) Developer build and sell while Promoter deal with land
b) Promoter and developer are treated same
c) Promoter provides money to developer
d) Promoter build and sell while developer deal with land

- 7) To be successful, business ethics training program need to _____.
a) focus on personal opinions of employees
b) be limited to upper executives
c) educate employees on formal ethical frameworks and models of ethical decision making
d) promote the use of emotions in making tough ethical decisions
- 8) What among the following elements takes the most direct and immediate set back in a case of conflict of interest by a public official?
a) reputation of the officer
b) trust that the public holds in the office
c) legitimacy of the office
d) constitution of India
- 9) An arbitral award _____.
a) must relate to the subject-matter of the dispute arbitrated
b) must be founded on principle of trust
c) both (a) and (b) are correct
d) only (a) is correct
- 10) Which act requires employers in industrial establishments to define the conditions of employment?
a) The Factories Act, 1948
b) The Industrial Disputes Act, 1947
c) The Industrial Employment Act, 1946
d) The Trade Union Act, 1926
- 11) Which of the following is Rights of a Copyright Owner?
a) Publish their work and Perform their work in public
b) Translate and Broadcast their work
c) Prevent others from making unauthorized use of copyrighted work
d) All of the above
- 12) Patent is a _____.
a) Transferable property
b) Negotiable property
c) Real property
d) Non-transferable property
- 13) An agreement enforceable by law is: _____.
a) A voidable contract
b) A Valid contract / contract
c) A Void
d) A void contract
- 14) Which of the following is an example of conflict of interest?
a) An individual who works at 7-11 while also volunteering their time on their days off
b) An individual who is self-employed starting a computer business
c) A person working for Apple and Microsoft at the same time
d) A person working for INTEL

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Professional Practice, Law & Ethics (197042803)

Day & Date: Tuesday, 14-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from Section - I
2) Solve any two questions from Section - II
3) Figures to right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain role governed by manufacturer, vendor & service agencies. **07**
b) Explain term profession & and professional body, enlist benefits & disadvantages of joining professional body. **07**
- Q.3** a) Define ethics and enlist & explain its types. **07**
b) Explain terms Professional responsibility & Conflict of interest. **07**
- Q.4** a) Write note on tenders and Request for proposals. **07**
b) Write note on wrong practices in contracting. **07**

Section – II

- Q.5** a) Explain the concept of arbitration tribunal. **07**
b) Distinguish between Conciliation, Negotiation, Mediation and Arbitration. **07**
- Q.6** a) Explain workmen compensation act, 1923. **07**
b) Discuss methods of engaging labor. **07**
- Q.7** a) Explain process of obtaining/filing the patent. **07**
b) Write note on ownership of copyrights and assignments. **07**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING
Professional Practice, Law & Ethics (197042803)

Day & Date: Tuesday, 14-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Which act requires employers in industrial establishments to define the conditions of employment?
 - a) The Factories Act, 1948
 - b) The Industrial Disputes Act, 1947
 - c) The Industrial Employment Act, 1946
 - d) The Trade Union Act, 1926
- 2) Which of the following is Rights of a Copyright Owner?
 - a) Publish their work and Perform their work in public
 - b) Translate and Broadcast their work
 - c) Prevent others from making unauthorized use of copyrighted work
 - d) All of the above
- 3) Patent is a _____.

a) Transferable property	b) Negotiable property
c) Real property	d) Non-transferable property
- 4) An agreement enforceable by law is: _____.

a) A voidable contract	b) A Valid contract / contract
c) A Void	d) A void contract
- 5) Which of the following is an example of conflict of interest?
 - a) An individual who works at 7-11 while also volunteering their time on their days off
 - b) An individual who is self-employed starting a computer business
 - c) A person working for Apple and Microsoft at the same time
 - d) A person working for INTEL
- 6) The first and farthest professional ethics is _____.
 - a) to strive for excellence
 - b) to take care to environment
 - c) to serve the needy and poor of the society
 - d) None of these

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
CIVIL ENGINEERING**

Professional Practice, Law & Ethics (197042803)

Day & Date: Tuesday, 14-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from Section - I
2) Solve any two questions from Section - II
3) Figures to right indicate full marks.
4) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2** a) Explain role governed by manufacturer, vendor & service agencies. **07**
b) Explain term profession & and professional body, enlist benefits & disadvantages of joining professional body. **07**
- Q.3** a) Define ethics and enlist & explain its types. **07**
b) Explain terms Professional responsibility & Conflict of interest. **07**
- Q.4** a) Write note on tenders and Request for proposals. **07**
b) Write note on wrong practices in contracting. **07**

Section – II

- Q.5** a) Explain the concept of arbitration tribunal. **07**
b) Distinguish between Conciliation, Negotiation, Mediation and Arbitration. **07**
- Q.6** a) Explain workmen compensation act, 1923. **07**
b) Discuss methods of engaging labor. **07**
- Q.7** a) Explain process of obtaining/filing the patent. **07**
b) Write note on ownership of copyrights and assignments. **07**

- 9) A keyway lowers _____.
a) The strength of the shaft b) The rigidity of shaft
c) Both strength & rigidity of shaft d) Ductility of shaft material
- 10) The bolts in rigid flanged coupling connecting two shafts transmitting power are subjected to _____.
a) Shear force and bending moment
b) axial force
c) Torsion & bending moment
d) Torsion
- 11) The maximum shear stress in spring wire is induced at _____.
a) Inner surface of coil b) Outer surface of coil
c) Central surface of coil d) End coils
- 12) The function of spring is _____.
a) To absorb shock b) To store energy
c) To measure force d) None of the above
- 13) Which of the following is the temporary joint?
a) Butt welding b) Bolted
c) Riveted d) Lap welded
- 14) A bolt M 24 × 2 means that _____.
a) The pitch of the thread is 24 mm & depth is 2 mm
b) The cross-sectional area of the threads is 24 mm²
c) The nominal diameter of the bolt is 24 mm & the pitch is 2 mm
d) The effective diameter of the bolt is 24 mm & there are two threads per cm

Seat No.	
----------	--

Set	P
-----	---

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Design of Machine Elements (BTN02501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any Two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

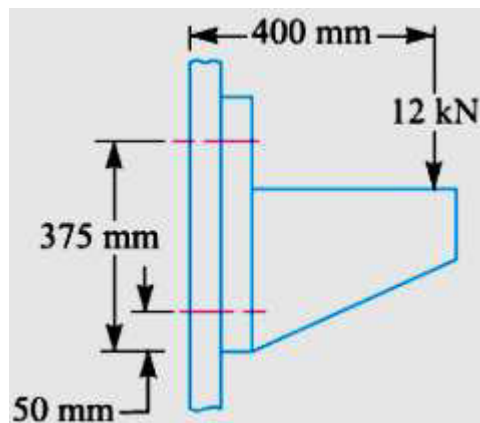
Section – I

- Q.2** a) Illustrate any one theory of failure with its graphical representation. **06**
 b) Two plain carbon steel (30C8) rods are connected by means of knuckle joint to transmit an axial tensile force of 60 kN. Calculate the diameter of knuckle pin subjected to double shear and outer diameter of single eye, by considering factor of safety as 3. Yield stress (S_{yt}) of 30C8 is 400N/mm^2 **08**
- Q.3** a) Illustrate with neat diagram stress concentration and remedies to reduce stress concentration. **06**
 b) A bar of circular cross-section is subjected to alternating tensile forces varying from a minimum of 200 kN to a maximum of 500 kN. It is to be manufactured of a material with an ultimate tensile strength of 900 MPa and an endurance limit of 700 MPa. Determine the diameter of bar using factor of safety 3.5 related to ultimate tensile strength and 4 related to endurance limit and a stress concentration factor of 1.65 for fatigue load. Use Goodman straight line as basis for design. **08**
- Q.4** a) What are the advantages of belt drive? **04**
 b) What are the limitations of V-Belt drive? **03**
 c) Write step by step procedure to select flat belt from Manufacturers Catalogue. **07**

Section – II

- Q.5** a) What are the design considerations in casting? **04**
 b) Explain different types of shafts. **03**
 c) The pulley on the line shaft is 1.5 metre in diameter and has belt tension 5.4 kN and 1.8 kN on the tight side and slack side of the belt, respectively. Both these tensions may be assumed to be vertical. If the pulley be overhang from the shaft, the distance of the centre line of the pulley from the centre line of the bearing being 400 mm, find the diameter of the shaft. Assume maximum allowable shear stress of 42 MPa. **07**

- Q.6 a)** Explain following terms of springs **04**
- 1) Free length
 - 2) Active coils
 - 3) Spring index
 - 4) Spring rate
- b)** What are the different types of springs? Explain with neat sketch leaf spring. **03**
- c)** A compression coil spring made of an alloy steel is having the following specifications: **07**
 Mean diameter of coil = 50 mm; Wire diameter = 5 mm; Number of active coils = 20.
 If this spring is subjected to an axial load of 500 N; calculate the maximum shear stress to which the spring material is subjected in case of:
- 1) Neglecting the curvature effect
 - 2) Considering the effect of curvature
- Q.7 a)** What are the advantages and di-advantages of welded joint over bolted joint? **04**
- b)** Explain different types of stress induced in bolt in bolted joint. **03**
- c)** A bracket as shown in Fig. is applied by load of 10 kN vertically at a distance of 400 mm from the face of the column. The vertical face of the bracket is secured to a column by four bolts, in two rows (two in each row) at a distance of 50 mm from the lower edge of the bracket. Determine the size of the bolts, if the permissible value of the tensile stress for the bolt material is 84 MPa. **07**



Seat No.	
----------	--

Set

Q

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Design of Machine Elements (BTN02501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any Two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

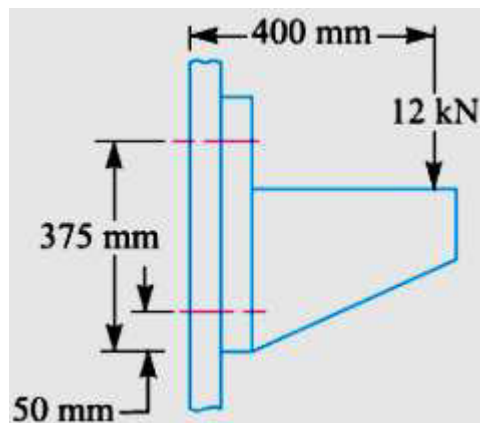
Section – I

- Q.2** a) Illustrate any one theory of failure with its graphical representation. **06**
 b) Two plain carbon steel (30C8) rods are connected by means of knuckle joint to transmit an axial tensile force of 60 kN. Calculate the diameter of knuckle pin subjected to double shear and outer diameter of single eye, by considering factor of safety as 3. Yield stress (S_{yt}) of 30C8 is 400N/mm^2 **08**
- Q.3** a) Illustrate with neat diagram stress concentration and remedies to reduce stress concentration. **06**
 b) A bar of circular cross-section is subjected to alternating tensile forces varying from a minimum of 200 kN to a maximum of 500 kN. It is to be manufactured of a material with an ultimate tensile strength of 900 MPa and an endurance limit of 700 MPa. Determine the diameter of bar using factor of safety 3.5 related to ultimate tensile strength and 4 related to endurance limit and a stress concentration factor of 1.65 for fatigue load. Use Goodman straight line as basis for design. **08**
- Q.4** a) What are the advantages of belt drive? **04**
 b) What are the limitations of V-Belt drive? **03**
 c) Write step by step procedure to select flat belt from Manufacturers Catalogue. **07**

Section – II

- Q.5** a) What are the design considerations in casting? **04**
 b) Explain different types of shafts. **03**
 c) The pulley on the line shaft is 1.5 metre in diameter and has belt tension 5.4 kN and 1.8 kN on the tight side and slack side of the belt, respectively. Both these tensions may be assumed to be vertical. If the pulley be overhang from the shaft, the distance of the centre line of the pulley from the centre line of the bearing being 400 mm, find the diameter of the shaft. Assume maximum allowable shear stress of 42 MPa. **07**

- Q.6** a) Explain following terms of springs **04**
- 1) Free length
 - 2) Active coils
 - 3) Spring index
 - 4) Spring rate
- b) What are the different types of springs? Explain with neat sketch leaf spring. **03**
- c) A compression coil spring made of an alloy steel is having the following specifications: **07**
 Mean diameter of coil = 50 mm; Wire diameter = 5 mm; Number of active coils = 20.
 If this spring is subjected to an axial load of 500 N; calculate the maximum shear stress to which the spring material is subjected in case of:
- 1) Neglecting the curvature effect
 - 2) Considering the effect of curvature
- Q.7** a) What are the advantages and di-advantages of welded joint over bolted joint? **04**
- b) Explain different types of stress induced in bolt in bolted joint. **03**
- c) A bracket as shown in Fig. is applied by load of 10 kN vertically at a distance of 400 mm from the face of the column. The vertical face of the bracket is secured to a column by four bolts, in two rows (two in each row) at a distance of 50 mm from the lower edge of the bracket. Determine the size of the bolts, if the permissible value of the tensile stress for the bolt material is 84 MPa. **07**



Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Design of Machine Elements (BTN02501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) The maximum shear stress in spring wire is induced at _____.
 a) Inner surface of coil b) Outer surface of coil
 c) Central surface of coil d) End coils
- 2) The function of spring is _____.
 a) To absorb shock b) To store energy
 c) To measure force d) None of the above
- 3) Which of the following is the temporary joint?
 a) Butt welding b) Bolted
 c) Riveted d) Lap welded
- 4) A bolt M 24 × 2 means that _____.
 a) The pitch of the thread is 24 mm & depth is 2 mm
 b) The cross-sectional area of the threads is 24 mm²
 c) The nominal diameter of the bolt is 24 mm & the pitch is 2 mm
 d) The effective diameter of the bolt is 24 mm & there are two threads per cm
- 5) The maximum principal stress theory is proper choice for _____.
 a) Brittle material b) Ductile material
 c) Non-metals d) Both a & b
- 6) All the types of levers are subjected to _____.
 a) Twisting moment b) Bending moment
 c) Direct axial load d) Both a & b
- 7) The causes of stress concentration are _____.
 a) variation is material property b) variation of load
 c) variation of factor of safety d) variation in cross sectional area
- 8) Stress concentration in static loading is more serious in _____.
 a) Ductile material b) Brittle material
 c) Equally serious in both cases d) Depends on other factor

- 9) The V-belts are particularly good for _____ drives.
- a) Short
 - b) Long
 - c) a and b
 - d) All of the above
- 10) The power transmitted by means of belt depends upon _____.
- a) Velocity of the belt
 - b) Tension under which the belt is placed on the pulleys
 - c) Arc of the contact between the belt and smaller pulley
 - d) All of the above
- 11) In the assembly of pulley, key & shaft _____.
- a) pulley is made weakest
 - b) key is made weakest
 - c) key is made strongest
 - d) All three are designed for equal strength
- 12) The muff coupling is designed as a _____.
- a) Thin cylinder
 - b) Thick cylinder
 - c) Solid shaft
 - d) Hollow shaft
- 13) A keyway lowers _____.
- a) The strength of the shaft
 - b) The rigidity of shaft
 - c) Both strength & rigidity of shaft
 - d) Ductility of shaft material
- 14) The bolts in rigid flanged coupling connecting two shafts transmitting power are subjected to _____.
- a) Shear force and bending moment
 - b) axial force
 - c) Torsion & bending moment
 - d) Torsion

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Design of Machine Elements (BTN02501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any Two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

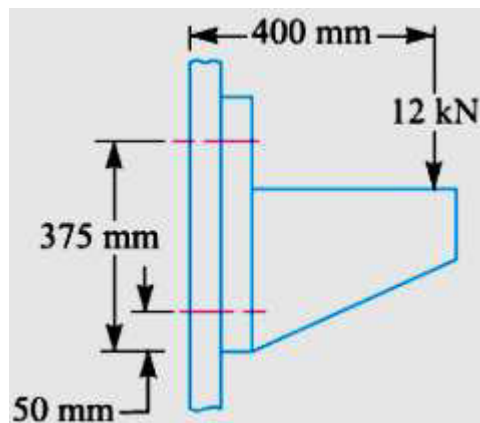
Section – I

- Q.2** a) Illustrate any one theory of failure with its graphical representation. **06**
 b) Two plain carbon steel (30C8) rods are connected by means of knuckle joint to transmit an axial tensile force of 60 kN. Calculate the diameter of knuckle pin subjected to double shear and outer diameter of single eye, by considering factor of safety as 3. Yield stress (S_{yt}) of 30C8 is 400N/mm^2 **08**
- Q.3** a) Illustrate with neat diagram stress concentration and remedies to reduce stress concentration. **06**
 b) A bar of circular cross-section is subjected to alternating tensile forces varying from a minimum of 200 kN to a maximum of 500 kN. It is to be manufactured of a material with an ultimate tensile strength of 900 MPa and an endurance limit of 700 MPa. Determine the diameter of bar using factor of safety 3.5 related to ultimate tensile strength and 4 related to endurance limit and a stress concentration factor of 1.65 for fatigue load. Use Goodman straight line as basis for design. **08**
- Q.4** a) What are the advantages of belt drive? **04**
 b) What are the limitations of V-Belt drive? **03**
 c) Write step by step procedure to select flat belt from Manufacturers Catalogue. **07**

Section – II

- Q.5** a) What are the design considerations in casting? **04**
 b) Explain different types of shafts. **03**
 c) The pulley on the line shaft is 1.5 metre in diameter and has belt tension 5.4 kN and 1.8 kN on the tight side and slack side of the belt, respectively. Both these tensions may be assumed to be vertical. If the pulley be overhang from the shaft, the distance of the centre line of the pulley from the centre line of the bearing being 400 mm, find the diameter of the shaft. Assume maximum allowable shear stress of 42 MPa. **07**

- Q.6 a)** Explain following terms of springs **04**
- 1) Free length
 - 2) Active coils
 - 3) Spring index
 - 4) Spring rate
- b)** What are the different types of springs? Explain with neat sketch leaf spring. **03**
- c)** A compression coil spring made of an alloy steel is having the following specifications: **07**
 Mean diameter of coil = 50 mm; Wire diameter = 5 mm; Number of active coils = 20.
 If this spring is subjected to an axial load of 500 N; calculate the maximum shear stress to which the spring material is subjected in case of:
- 1) Neglecting the curvature effect
 - 2) Considering the effect of curvature
- Q.7 a)** What are the advantages and di-advantages of welded joint over bolted joint? **04**
- b)** Explain different types of stress induced in bolt in bolted joint. **03**
- c)** A bracket as shown in Fig. is applied by load of 10 kN vertically at a distance of 400 mm from the face of the column. The vertical face of the bracket is secured to a column by four bolts, in two rows (two in each row) at a distance of 50 mm from the lower edge of the bracket. Determine the size of the bolts, if the permissible value of the tensile stress for the bolt material is 84 MPa. **07**



Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Design of Machine Elements (BTN02501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The power transmitted by means of belt depends upon _____.
 a) Velocity of the belt
 b) Tension under which the belt is placed on the pulleys
 c) Arc of the contact between the belt and smaller pulley
 d) All of the above
- 2) In the assembly of pulley, key & shaft _____.
 a) pulley is made weakest
 b) key is made weakest
 c) key is made strongest
 d) All three are designed for equal strength
- 3) The muff coupling is designed as a _____.
 a) Thin cylinder
 b) Thick cylinder
 c) Solid shaft
 d) Hollow shaft
- 4) A keyway lowers _____.
 a) The strength of the shaft
 b) The rigidity of shaft
 c) Both strength & rigidity of shaft
 d) Ductility of shaft material
- 5) The bolts in rigid flanged coupling connecting two shafts transmitting power are subjected to _____.
 a) Shear force and bending moment
 b) axial force
 c) Torsion & bending moment
 d) Torsion
- 6) The maximum shear stress in spring wire is induced at _____.
 a) Inner surface of coil
 b) Outer surface of coil
 c) Central surface of coil
 d) End coils
- 7) The function of spring is _____.
 a) To absorb shock
 b) To store energy
 c) To measure force
 d) None of the above

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Design of Machine Elements (BTN02501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any Two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

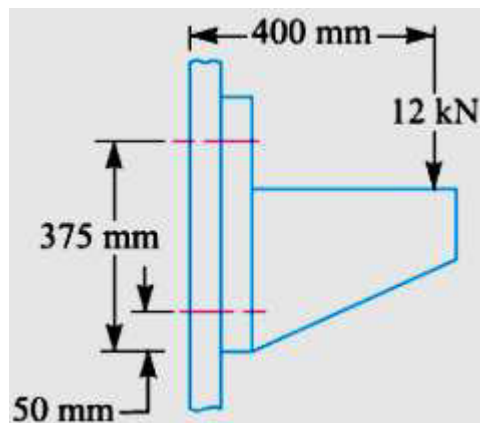
Section – I

- Q.2** a) Illustrate any one theory of failure with its graphical representation. **06**
 b) Two plain carbon steel (30C8) rods are connected by means of knuckle joint to transmit an axial tensile force of 60 kN. Calculate the diameter of knuckle pin subjected to double shear and outer diameter of single eye, by considering factor of safety as 3. Yield stress (S_{yt}) of 30C8 is 400N/mm^2 **08**
- Q.3** a) Illustrate with neat diagram stress concentration and remedies to reduce stress concentration. **06**
 b) A bar of circular cross-section is subjected to alternating tensile forces varying from a minimum of 200 kN to a maximum of 500 kN. It is to be manufactured of a material with an ultimate tensile strength of 900 MPa and an endurance limit of 700 MPa. Determine the diameter of bar using factor of safety 3.5 related to ultimate tensile strength and 4 related to endurance limit and a stress concentration factor of 1.65 for fatigue load. Use Goodman straight line as basis for design. **08**
- Q.4** a) What are the advantages of belt drive? **04**
 b) What are the limitations of V-Belt drive? **03**
 c) Write step by step procedure to select flat belt from Manufacturers Catalogue. **07**

Section – II

- Q.5** a) What are the design considerations in casting? **04**
 b) Explain different types of shafts. **03**
 c) The pulley on the line shaft is 1.5 metre in diameter and has belt tension 5.4 kN and 1.8 kN on the tight side and slack side of the belt, respectively. Both these tensions may be assumed to be vertical. If the pulley be overhang from the shaft, the distance of the centre line of the pulley from the centre line of the bearing being 400 mm, find the diameter of the shaft. Assume maximum allowable shear stress of 42 MPa. **07**

- Q.6 a)** Explain following terms of springs **04**
- 1) Free length
 - 2) Active coils
 - 3) Spring index
 - 4) Spring rate
- b)** What are the different types of springs? Explain with neat sketch leaf spring. **03**
- c)** A compression coil spring made of an alloy steel is having the following specifications: **07**
 Mean diameter of coil = 50 mm; Wire diameter = 5 mm; Number of active coils = 20.
 If this spring is subjected to an axial load of 500 N; calculate the maximum shear stress to which the spring material is subjected in case of:
- 1) Neglecting the curvature effect
 - 2) Considering the effect of curvature
- Q.7 a)** What are the advantages and di-advantages of welded joint over bolted joint? **04**
- b)** Explain different types of stress induced in bolt in bolted joint. **03**
- c)** A bracket as shown in Fig. is applied by load of 10 kN vertically at a distance of 400 mm from the face of the column. The vertical face of the bracket is secured to a column by four bolts, in two rows (two in each row) at a distance of 50 mm from the lower edge of the bracket. Determine the size of the bolts, if the permissible value of the tensile stress for the bolt material is 84 MPa. **07**



Seat
No.

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
CAD-CAM-CAE (BTN02502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

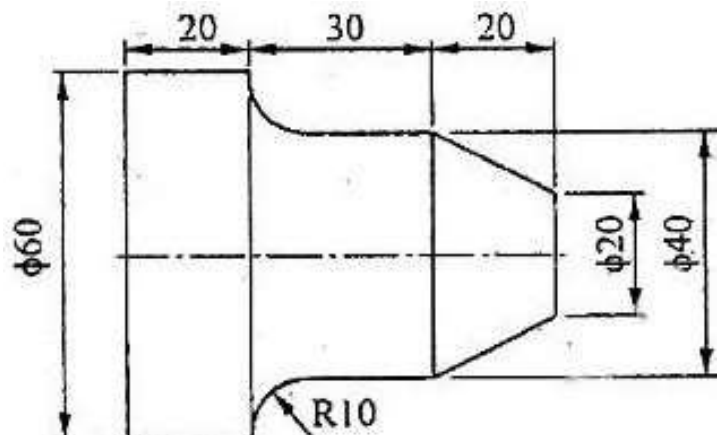
- Instructions:** 1) Attempt any two questions from in section - I.
 2) Question No. 5 is compulsory and from the remaining attempt any one from Section - II.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary.
 5) Use of scientific calculator is allowed.

Section – I

- Q.2** a) Explain part classification and coding system with example. **08**
 b) Which are the schemes of solid modeling? Explain any one. **06**
- Q.3** a) Explain functions of Graphics software. **07**
 b) Enlist the different types of FE analysis. Explain any 02 types in detail. **07**
- Q.4** a) Triangle PQR has its vertices at P (0, 0), Q (4, 0) and R (2, 3). It is to be translated by 04 units in X direction and 02 units in Y direction, then it is to be rotated in counter direction about point R through 90°. Find new position of triangle PQR. **08**
 b) How Automation and CAD/CAM are dependent on each other? Explain with example. **06**

Section – II

- Q.5** a) With reference to component drawing given below prepare CNC part program. **10**
 Given:
 Tool material: H.S.S. Work Material: M.S.
 Spindle speed: 2000 rpm Feed rate: 400 mm/min
 All dimensions are in mm.



- b) Explain concept of Do Loop in CNC Part Program. **04**

- | | | |
|------------|------------------------------------------------------------------------------|-----------|
| Q.6 | a) Describe Automatic Tool Changer with neat sketch. | 07 |
| | b) Explain types of DNC with neat sketch. | 07 |
| Q.7 | a) Explain Tool length and cutter diameter compensation with example. | 07 |
| | b) Explain types of NC System. | 07 |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
CAD-CAM-CAE (BTN02502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which type of tool magazines are generally used to handle large number of tools?
 - a) Drum type
 - b) Chain type
 - c) Turret type
 - d) Both a & b
- 2) The curve which is tangent at first and last segment of polygon is _____.
 - a) Bezier Curve
 - b) Spline Curve
 - c) Hermite Curve
 - d) None of the above
- 3) In numerical control systems, DNC stands for _____.
 - a) Dedicated Numerical Control
 - b) Directional Numerical Control
 - c) Distributed Numerical Control
 - d) b & c
- 4) Creation, analysis, modification and optimization is _____.
 - a) CIM
 - b) CAD
 - c) CAM
 - d) CAD/CAM
- 5) The machine zero on lathe is generally set on the machine at _____.
 - a) Top right side
 - b) Top left side
 - c) At top mid position
 - d) None of the above
- 6) CSG is a _____.
 - a) Wire frame modeling scheme
 - b) Solid modeling scheme
 - c) Surface modeling scheme
 - d) All the above
- 7) FANUC, CNUMERIC, SIEMENS are CNC _____.
 - a) Programming language
 - b) Controllers
 - c) Machines
 - d) None
- 8) NC machines used for drilling, boring, reaming, tapping is _____.
 - a) Contouring type
 - b) Straight cut
 - c) Point to point
 - d) None of the above

- 9) Windowing transformation means _____.
a) Window to viewport transformation
b) Geometric transformation
c) Vertices transformation
d) Homogeneous Transformation
- 10) Miscellaneous function used for Coolant off is _____.
a) M 07
b) M 09
c) M 08
d) M10
- 11) Concatenations can be done using _____.
a) Viewing coordinates
b) Polar coordinate
c) Cylindrical coordinate
d) Homogeneous coordinate
- 12) The preparatory function used for circular clockwise interpolation function is _____.
a) G03
b) G02
c) G04
d) G01
- 13) In the following geometric modeling which is not 3D modeling?
a) Wireframe modeling
b) Surface modeling
c) Drafting
d) Solid Modeling
- 14) Retrieval type and generative type are the types of _____.
a) F.M.S.
b) Group Technology
c) C.A.P.P.
d) DNC

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
CAD-CAM-CAE (BTN02502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

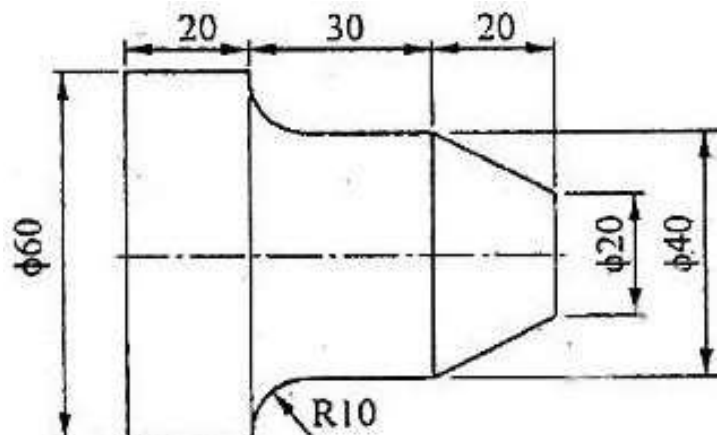
- Instructions:** 1) Attempt any two questions from in section - I.
 2) Question No. 5 is compulsory and from the remaining attempt any one from Section - II.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary.
 5) Use of scientific calculator is allowed.

Section – I

- Q.2** a) Explain part classification and coding system with example. **08**
 b) Which are the schemes of solid modeling? Explain any one. **06**
- Q.3** a) Explain functions of Graphics software. **07**
 b) Enlist the different types of FE analysis. Explain any 02 types in detail. **07**
- Q.4** a) Triangle PQR has its vertices at P (0, 0), Q (4, 0) and R (2, 3). It is to be translated by 04 units in X direction and 02 units in Y direction, then it is to be rotated in counter direction about point R through 90°. Find new position of triangle PQR. **08**
 b) How Automation and CAD/CAM are dependent on each other? Explain with example. **06**

Section – II

- Q.5** a) With reference to component drawing given below prepare CNC part program. **10**
 Given:
 Tool material: H.S.S. Work Material: M.S.
 Spindle speed: 2000 rpm Feed rate: 400 mm/min
 All dimensions are in mm.



- b) Explain concept of Do Loop in CNC Part Program. **04**

- | | | |
|------------|------------------------------------------------------------------------------|-----------|
| Q.6 | a) Describe Automatic Tool Changer with neat sketch. | 07 |
| | b) Explain types of DNC with neat sketch. | 07 |
| Q.7 | a) Explain Tool length and cutter diameter compensation with example. | 07 |
| | b) Explain types of NC System. | 07 |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
CAD-CAM-CAE (BTN02502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from in section - I.
 2) Question No. 5 is compulsory and from the remaining attempt any one from Section - II.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary.
 5) Use of scientific calculator is allowed.

Section – I

- Q.2** a) Explain part classification and coding system with example. **08**
 b) Which are the schemes of solid modeling? Explain any one. **06**
- Q.3** a) Explain functions of Graphics software. **07**
 b) Enlist the different types of FE analysis. Explain any 02 types in detail. **07**
- Q.4** a) Triangle PQR has its vertices at P (0, 0), Q (4, 0) and R (2, 3). It is to be translated by 04 units in X direction and 02 units in Y direction, then it is to be rotated in counter direction about point R through 90°. Find new position of triangle PQR. **08**
 b) How Automation and CAD/CAM are dependent on each other? Explain with example. **06**

Section – II

- Q.5** a) With reference to component drawing given below prepare CNC part program. **10**

Given:

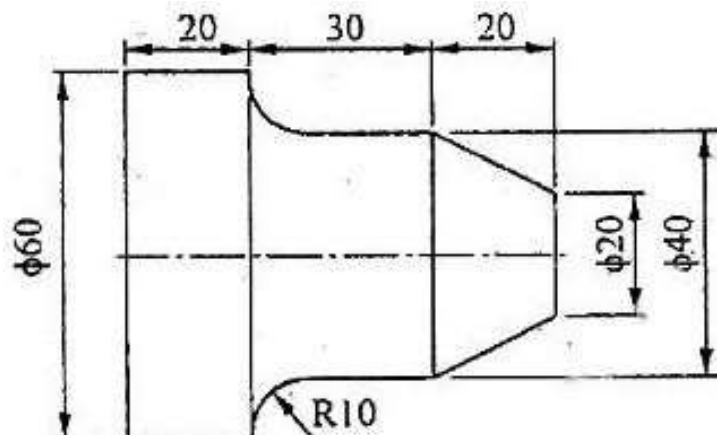
Tool material: H.S.S.

Spindle speed: 2000 rpm

All dimensions are in mm.

Work Material: M.S.

Feed rate: 400 mm/min



- b) Explain concept of Do Loop in CNC Part Program. **04**

- | | | |
|------------|------------------------------------------------------------------------------|-----------|
| Q.6 | a) Describe Automatic Tool Changer with neat sketch. | 07 |
| | b) Explain types of DNC with neat sketch. | 07 |
| Q.7 | a) Explain Tool length and cutter diameter compensation with example. | 07 |
| | b) Explain types of NC System. | 07 |

Seat
No.

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
CAD-CAM-CAE (BTN02502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) In the following geometric modeling which is not 3D modeling?
 a) Wireframe modeling b) Surface modeling
 c) Drafting d) Solid Modeling
- 2) Retrieval type and generative type are the types of _____.
 a) F.M.S. b) Group Technology
 c) C.A.P.P. d) DNC
- 3) Which type of tool magazines are generally used to handle large number of tools?
 a) Drum type b) Chain type
 c) Turret type d) Both a & b
- 4) The curve which is tangent at first and last segment of polygon is _____.
 a) Bezier Curve b) Spline Curve
 c) Hermite Curve d) None of the above
- 5) In numerical control systems, DNC stands for _____.
 a) Dedicated Numerical Control b) Directional Numerical Control
 c) Distributed Numerical Control d) b & c
- 6) Creation, analysis, modification and optimization is _____.
 a) CIM b) CAD
 c) CAM d) CAD/CAM
- 7) The machine zero on lathe is generally set on the machine at _____.
 a) Top right side b) Top left side
 c) At top mid position d) None of the above
- 8) CSG is a _____.
 a) Wire frame modeling scheme
 b) Solid modeling scheme
 c) Surface modeling scheme
 d) All the above

- 9) FANUC, CNUMERIC, SIEMENS are CNC _____.
a) Programming language b) Controllers
c) Machines d) None
- 10) NC machines used for drilling, boring, reaming, tapping is _____.
a) Contouring type b) Straight cut
c) Point to point d) None of the above
- 11) Windowing transformation means _____.
a) Window to viewport transformation
b) Geometric transformation
c) Vertices transformation
d) Homogeneous Transformation
- 12) Miscellaneous function used for Coolant off is _____.
a) M 07 b) M 09
c) M 08 d) M10
- 13) Concatenations can be done using _____.
a) Viewing coordinates b) Polar coordinate
c) Cylindrical coordinate d) Homogeneous coordinate
- 14) The preparatory function used for circular clockwise interpolation function is _____.
a) G03 b) G02
c) G04 d) G01

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
CAD-CAM-CAE (BTN02502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from in section - I.
 2) Question No. 5 is compulsory and from the remaining attempt any one from Section - II.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary.
 5) Use of scientific calculator is allowed.

Section – I

- Q.2** a) Explain part classification and coding system with example. **08**
 b) Which are the schemes of solid modeling? Explain any one. **06**
- Q.3** a) Explain functions of Graphics software. **07**
 b) Enlist the different types of FE analysis. Explain any 02 types in detail. **07**
- Q.4** a) Triangle PQR has its vertices at P (0, 0), Q (4, 0) and R (2, 3). It is to be translated by 04 units in X direction and 02 units in Y direction, then it is to be rotated in counter direction about point R through 90°. Find new position of triangle PQR. **08**
 b) How Automation and CAD/CAM are dependent on each other? Explain with example. **06**

Section – II

- Q.5** a) With reference to component drawing given below prepare CNC part program. **10**

Given:

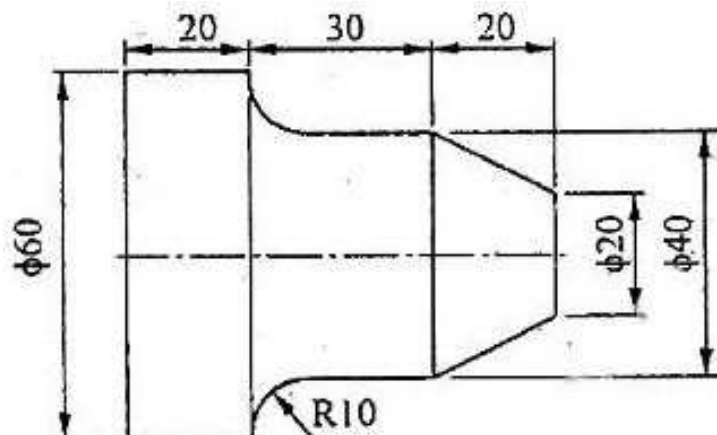
Tool material: H.S.S.

Spindle speed: 2000 rpm

All dimensions are in mm.

Work Material: M.S.

Feed rate: 400 mm/min



- b) Explain concept of Do Loop in CNC Part Program. **04**

- | | | | |
|------------|-----------|--------------------------------------------------------------------|-----------|
| Q.6 | a) | Describe Automatic Tool Changer with neat sketch. | 07 |
| | b) | Explain types of DNC with neat sketch. | 07 |
| Q.7 | a) | Explain Tool length and cutter diameter compensation with example. | 07 |
| | b) | Explain types of NC System. | 07 |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 A) Choose the correct answer:** **14**
- 1) Eutectic means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid
 - 2) Isomorphous means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid state
 - 3) Which of the following steel cannot be hardened by heat treatment? **01**
 - a) Austenitic stainless steel
 - b) Ferritic stainless steel
 - c) Maraging Steel
 - d) HCHC Steel
 - 4) Which of the following steel is oil hardened? **01**
 - a) Austenitic stainless steel
 - b) HCHC Steel
 - c) High Carbon Steel
 - d) HSLA Steel
 - 5) Which of the following alloy is precipitation hardened? **01**
 - a) Brass
 - b) Tin bronze
 - c) Duralumin
 - d) Aluminum bronze
 - 6) Which of the following alloy is given modification treatment? **01**
 - a) Al-Cu alloy
 - b) Cu-Sn alloy
 - c) Al-Si alloy
 - d) Cu-Al alloy

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions, if required and state them dearly.

Section – I

- Q.2** a) Explain classification of metallic materials. **04**
 b) Compare the following: **04**
 - Interstitial & substitutional solid solution
 c) Draw Fe-Fe₃C diagram. Label all the phases / constituents and temperatures correctly. **06**
- Q.3** a) Write short note on stainless steel. **04**
 b) Draw the neat sketch for SG iron & Grey cast iron. (Microstructure) **04**
 c) Give the composition, properties & application of following. (Any Three) **06**
 i) S.G. iron
 ii) OHNS
 iii) HCHC steel
 iv) 18-4-1 tool steel
- Q.4** a) Compare between steel & cast iron. **04**
 b) Compare between Eutectic transformation & eutectoid transformation. **04**
 c) Compare between Brasses & Bronzes with at least two examples. **06**

Section – II

- Q.5** a) Write short notes on following: **04**
 i) Nano materials
 ii) Composite materials
 b) Draw neat sketch for following: **06**
 - Effect of modification on Al-Si system
 c) Explain the following terms: **04**
 - Austempering & martempering
- Q.6** a) What is the heat treatment? State objectives of hardening & types of hardening. **06**
 b) Draw TTT diagram for eutectoid steel & label all phases and temperature. **04**
 c) Compare between: **04**
 - Annealing Vs. Normalising

- Q.7**
- a) What is tempering explain in brief types of tempering. **04**
 - b) Draw flow chart for manufacture of sintered friction materials by P/M. **04**
 - c) Explain with neat sketch at least two methods of powder manufacturing. **06**
- Q.8**
- a) Draw creep curve & explain various stages in brief. **06**
 - b) Write short note on X-ray radiography test. **04**
 - c) Compare between Brinell hardness test & Rockwell hardness test. **04**

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 A) Choose the correct answer:** **14**
- 1) Which of the following steel cannot be hardened by heat treatment? **01**
 - a) Austenitic stainless steel
 - b) Ferritic stainless steel
 - c) Maraging Steel
 - d) HCHC Steel
 - 2) Which of the following steel is oil hardened? **01**
 - a) Austenitic stainless steel
 - b) HCHC Steel
 - c) High Carbon Steel
 - d) HSLA Steel
 - 3) Which of the following alloy is precipitation hardened? **01**
 - a) Brass
 - b) Tin bronze
 - c) Duralumin
 - d) Aluminum bronze
 - 4) Which of the following alloy is given modification treatment? **01**
 - a) Al-Cu alloy
 - b) Cu-Sn alloy
 - c) Al-Si alloy
 - d) Cu-Al alloy
 - 5) Eutectic means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid
 - 6) Isomorphous means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid state

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions, if required and state them dearly.

Section – I

- Q.2** a) Explain classification of metallic materials. **04**
 b) Compare the following: **04**
 - Interstitial & substitutional solid solution
 c) Draw Fe-Fe₃C diagram. Label all the phases / constituents and temperatures correctly. **06**
- Q.3** a) Write short note on stainless steel. **04**
 b) Draw the neat sketch for SG iron & Grey cast iron. (Microstructure) **04**
 c) Give the composition, properties & application of following. (Any Three) **06**
 i) S.G. iron
 ii) OHNS
 iii) HCHC steel
 iv) 18-4-1 tool steel
- Q.4** a) Compare between steel & cast iron. **04**
 b) Compare between Eutectic transformation & eutectoid transformation. **04**
 c) Compare between Brasses & Bronzes with at least two examples. **06**

Section – II

- Q.5** a) Write short notes on following: **04**
 i) Nano materials
 ii) Composite materials
 b) Draw neat sketch for following: **06**
 - Effect of modification on Al-Si system
 c) Explain the following terms: **04**
 - Austempering & martempering
- Q.6** a) What is the heat treatment? State objectives of hardening & types of hardening. **06**
 b) Draw TTT diagram for eutectoid steel & label all phases and temperature. **04**
 c) Compare between: **04**
 - Annealing Vs. Normalising

- Q.7**
- a) What is tempering explain in brief types of tempering. **04**
 - b) Draw flow chart for manufacture of sintered friction materials by P/M. **04**
 - c) Explain with neat sketch at least two methods of powder manufacturing. **06**
- Q.8**
- a) Draw creep curve & explain various stages in brief. **06**
 - b) Write short note on X-ray radiography test. **04**
 - c) Compare between Brinell hardness test & Rockwell hardness test. **04**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 A) Choose the correct answer:** **14**
- 1) Isomorphous means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid state
 - 2) Which of the following steel cannot be hardened by heat treatment? **01**
 - a) Austenitic stainless steel
 - b) Ferritic stainless steel
 - c) Maraging Steel
 - d) HCHC Steel
 - 3) Which of the following steel is oil hardened? **01**
 - a) Austenitic stainless steel
 - b) HCHC Steel
 - c) High Carbon Steel
 - d) HSLA Steel
 - 4) Which of the following alloy is precipitation hardened? **01**
 - a) Brass
 - b) Tin bronze
 - c) Duralumin
 - d) Aluminum bronze
 - 5) Which of the following alloy is given modification treatment? **01**
 - a) Al-Cu alloy
 - b) Cu-Sn alloy
 - c) Al-Si alloy
 - d) Cu-Al alloy
 - 6) Eutectic means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions, if required and state them dearly.

Section – I

- | | | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain classification of metallic materials. | 04 |
| | b) Compare the following:
- Interstitial & substitutional solid solution | 04 |
| | c) Draw Fe-Fe ₃ C diagram. Label all the phases / constituents and temperatures correctly. | 06 |
| Q.3 | a) Write short note on stainless steel. | 04 |
| | b) Draw the neat sketch for SG iron & Grey cast iron. (Microstructure) | 04 |
| | c) Give the composition, properties & application of following. (Any Three)
i) S.G. iron
ii) OHNS
iii) HCHC steel
iv) 18-4-1 tool steel | 06 |
| Q.4 | a) Compare between steel & cast iron. | 04 |
| | b) Compare between Eutectic transformation & eutectoid transformation. | 04 |
| | c) Compare between Brasses & Bronzes with at least two examples. | 06 |

Section – II

- | | | |
|------------|------------------------------------------------------------------------------------|-----------|
| Q.5 | a) Write short notes on following:
i) Nano materials
ii) Composite materials | 04 |
| | b) Draw neat sketch for following:
- Effect of modification on Al-Si system | 06 |
| | c) Explain the following terms:
- Austempering & martempering | 04 |
| Q.6 | a) What is the heat treatment? State objectives of hardening & types of hardening. | 06 |
| | b) Draw TTT diagram for eutectoid steel & label all phases and temperature. | 04 |
| | c) Compare between:
- Annealing Vs. Normalising | 04 |

- Q.7**
- a) What is tempering explain in brief types of tempering. **04**
 - b) Draw flow chart for manufacture of sintered friction materials by P/M. **04**
 - c) Explain with neat sketch at least two methods of powder manufacturing. **06**
- Q.8**
- a) Draw creep curve & explain various stages in brief. **06**
 - b) Write short note on X-ray radiography test. **04**
 - c) Compare between Brinell hardness test & Rockwell hardness test. **04**

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book).
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 A) Choose the correct answer:** **14**
- 1) Which of the following alloy is given modification treatment? **01**
 - a) Al-Cu alloy
 - b) Cu-Sn alloy
 - c) Al-Si alloy
 - d) Cu-Al alloy
 - 2) Eutectic means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid
 - 3) Isomorphous means complete solubility in _____. **01**
 - a) Liquid state
 - b) Solid state
 - c) Liquid & solid state
 - d) Neither liquid nor solid state
 - 4) Which of the following steel cannot be hardened by heat treatment? **01**
 - a) Austenitic stainless steel
 - b) Ferritic stainless steel
 - c) Maraging Steel
 - d) HCHC Steel
 - 5) Which of the following steel is oil hardened? **01**
 - a) Austenitic stainless steel
 - b) HCHC Steel
 - c) High Carbon Steel
 - d) HSLA Steel
 - 6) Which of the following alloy is precipitation hardened? **01**
 - a) Brass
 - b) Tin bronze
 - c) Duralumin
 - d) Aluminum bronze

B) MCQ with more than one answer correct.

- 1) Which of the following NDT methods are useful in detecting cracks on the surface of component? **02**
- a) Ultrasonic test b) Magnetic Particle Test
c) Radiography d) Dye Penetrant Test
- 2) To Transform retained austenite to martensite which of the following treatment is employed? **02**
- a) Tempering b) Heating below A one line
c) Secondary Hardening d) Subzero Treatment
- 3) During manufacturing of self-lubricated bearing, which of the following is the important step? **02**
- a) Blending b) Heat Treatment
c) Inspection d) Impregnation
- 4) Magnetic particle test can be done on _____. **02**
- a) Cast Iron b) Duralumin
c) Bronze d) Plain carbon steel

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Metallurgy (BTN02503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions, if required and state them dearly.

Section – I

- Q.2** a) Explain classification of metallic materials. **04**
 b) Compare the following: **04**
 - Interstitial & substitutional solid solution
 c) Draw Fe-Fe₃C diagram. Label all the phases / constituents and temperatures correctly. **06**
- Q.3** a) Write short note on stainless steel. **04**
 b) Draw the neat sketch for SG iron & Grey cast iron. (Microstructure) **04**
 c) Give the composition, properties & application of following. (Any Three) **06**
 i) S.G. iron
 ii) OHNS
 iii) HCHC steel
 iv) 18-4-1 tool steel
- Q.4** a) Compare between steel & cast iron. **04**
 b) Compare between Eutectic transformation & eutectoid transformation. **04**
 c) Compare between Brasses & Bronzes with at least two examples. **06**

Section – II

- Q.5** a) Write short notes on following: **04**
 i) Nano materials
 ii) Composite materials
 b) Draw neat sketch for following: **06**
 - Effect of modification on Al-Si system
 c) Explain the following terms: **04**
 - Austempering & martempering
- Q.6** a) What is the heat treatment? State objectives of hardening & types of hardening. **06**
 b) Draw TTT diagram for eutectoid steel & label all phases and temperature. **04**
 c) Compare between: **04**
 - Annealing Vs. Normalising

- Q.7**
- a) What is tempering explain in brief types of tempering. **04**
 - b) Draw flow chart for manufacture of sintered friction materials by P/M. **04**
 - c) Explain with neat sketch at least two methods of powder manufacturing. **06**
- Q.8**
- a) Draw creep curve & explain various stages in brief. **06**
 - b) Write short note on X-ray radiography test. **04**
 - c) Compare between Brinell hardness test & Rockwell hardness test. **04**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Critical examination is carried out through _____.
 a) Cumulative stop watch b) Questioning process
 c) Travel chart d) Work sampling technique
- 2) ILO stands for _____.
 a) Indian Labour Organisation
 b) Indian Legislative Organisation
 c) International Labour Organisation
 d) None of the above
- 3) Personal allowance for male worker is _____.
 a) 4% b) 6%
 c) 5% d) 8%
- 4) A good plant layout _____.
 a) Gives workers safety
 b) Gives time and distance
 c) Streamline the flow of material
 d) Integrates men, material and machines
- 5) Productivity can be increased _____.
 a) When production increased without increase in input
 b) The same production with increase in input
 c) Production decreased without increase in input
 d) The rate of increase in output is more compared to rate of increase in input
- 6) Performance rating of an average qualified worker is _____.
 a) 50 b) 200
 c) 100 d) 150
- 7) Factors affecting the working condition _____.
 a) Plant lighting & ventilation elements
 b) Material handling equipment
 c) String diagram
 d) Process chart

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Use of calculator is allowed.
 3) Figures to right indicate full marks.
 4) Assume additional suitable data, if necessary and mention it clearly.

Section – I

- Q.2** a) What are the types of charts used in method study? Explain any one chart with suitable example. **07**
 b) Explain Critical Examination steps in Method Study. **07**
- Q.3** a) Explain Design of Workplace with neat sketch. **07**
 b) What is meant by Accident? Explain in brief about Prevention of accident. **07**
- Q.4** a) Define Work Study and Explain steps in work study. **07**
 b) Explain in brief contribution of Taylor's and Gilbreth in development of industrial engineering. **07**

Section – II

- Q.5** a) Explain various factors affecting on site selection. **07**
 b) Define Plant Layout. What are the types of Plant layout? Explain any two with neat sketch. **07**
- Q.6** a) What is job evolution? Explain any two methods of job evaluation. **07**
 b) What are the objectives of merit rating? Explain any two methods of merit rating. **07**
- Q.7** a) The observed time and performance rating of a time study is given below **07**

Elements	1	2	3	4	5
Observed time (min.)	0.2	0.08	0.6	0.12	0.10
Performance rating	80	85	95	80	85

Assume: Relaxation allowance - 15%
 Contingency allowance - 7%
 Interference allowance - 5%

Calculate Standard Time

- b) What is allowance? What are the various types of allowance? Explain in brief. **07**

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Use of calculator is allowed.
 3) Figures to right indicate full marks.
 4) Assume additional suitable data, if necessary and mention it clearly.

Section – I

- Q.2** a) What are the types of charts used in method study? Explain any one chart with suitable example. **07**
 b) Explain Critical Examination steps in Method Study. **07**
- Q.3** a) Explain Design of Workplace with neat sketch. **07**
 b) What is meant by Accident? Explain in brief about Prevention of accident. **07**
- Q.4** a) Define Work Study and Explain steps in work study. **07**
 b) Explain in brief contribution of Taylor's and Gilbreth in development of industrial engineering. **07**

Section – II

- Q.5** a) Explain various factors affecting on site selection. **07**
 b) Define Plant Layout. What are the types of Plant layout? Explain any two with neat sketch. **07**
- Q.6** a) What is job evolution? Explain any two methods of job evaluation. **07**
 b) What are the objectives of merit rating? Explain any two methods of merit rating. **07**
- Q.7** a) The observed time and performance rating of a time study is given below **07**

Elements	1	2	3	4	5
Observed time (min.)	0.2	0.08	0.6	0.12	0.10
Performance rating	80	85	95	80	85

Assume: Relaxation allowance - 15%
 Contingency allowance - 7%
 Interference allowance - 5%

Calculate Standard Time

- b) What is allowance? What are the various types of allowance? Explain in brief. **07**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Ergonomics deals with _____.
 a) Anthropometry
 b) Time measurement
 c) Aesthetic design
 d) None of the above
- 2) Process layout is suitable for _____.
 a) Job production
 b) Mass production
 c) Batch production
 d) Continuous
- 3) Gilbreth contributed to _____.
 a) Motion study
 b) Time study
 c) Project study
 d) Value engg.
- 4) Observed time is 5 min. and performance rating is 120. The normal time is _____.
 a) 0.6 min
 b) 1.2 min
 c) 6.0 min
 d) 12 min
- 5) Critical examination is carried out through _____.
 a) Cumulative stop watch
 b) Questioning process
 c) Travel chart
 d) Work sampling technique
- 6) ILO stands for _____.
 a) Indian Labour Organisation
 b) Indian Legislative Organisation
 c) International Labour Organisation
 d) None of the above
- 7) Personal allowance for male worker is _____.
 a) 4%
 b) 6%
 c) 5%
 d) 8%
- 8) A good plant layout _____.
 a) Gives workers safety
 b) Gives time and distance
 c) Streamline the flow of material
 d) Integrates men, material and machines

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Use of calculator is allowed.
 3) Figures to right indicate full marks.
 4) Assume additional suitable data, if necessary and mention it clearly.

Section – I

- Q.2** a) What are the types of charts used in method study? Explain any one chart with suitable example. **07**
 b) Explain Critical Examination steps in Method Study. **07**
- Q.3** a) Explain Design of Workplace with neat sketch. **07**
 b) What is meant by Accident? Explain in brief about Prevention of accident. **07**
- Q.4** a) Define Work Study and Explain steps in work study. **07**
 b) Explain in brief contribution of Taylor's and Gilbreth in development of industrial engineering. **07**

Section – II

- Q.5** a) Explain various factors affecting on site selection. **07**
 b) Define Plant Layout. What are the types of Plant layout? Explain any two with neat sketch. **07**
- Q.6** a) What is job evolution? Explain any two methods of job evaluation. **07**
 b) What are the objectives of merit rating? Explain any two methods of merit rating. **07**
- Q.7** a) The observed time and performance rating of a time study is given below **07**

Elements	1	2	3	4	5
Observed time (min.)	0.2	0.08	0.6	0.12	0.10
Performance rating	80	85	95	80	85

Assume: Relaxation allowance - 15%
 Contingency allowance - 7%
 Interference allowance - 5%

Calculate Standard Time

- b) What is allowance? What are the various types of allowance? Explain in brief. **07**

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Performance rating of an average qualified worker is _____.
 - a) 50
 - b) 200
 - c) 100
 - d) 150
- 2) Factors affecting the working condition _____.
 - a) Plant lighting & ventilation elements
 - b) Material handling equipment
 - c) String diagram
 - d) Process chart
- 3) Fixed position layout is also known as _____.
 - a) Synthetic layout
 - b) Static product layout
 - c) Analytical layout
 - d) None of above
- 4) Operation process chart is useful _____.
 - a) To study work station layout
 - b) To avoid waiting time and unnecessary
 - c) To reduce idle time of man and machine
 - d) To fix up the sequence of operation
- 5) Merit rating is the method of determining worth of _____.
 - a) A job
 - b) Machine
 - c) A particular division in workshop
 - d) An individual employee
- 6) Ergonomics deals with _____.
 - a) Anthropometry
 - b) Time measurement
 - c) Aesthetic design
 - d) None of the above
- 7) Process layout is suitable for _____.
 - a) Job production
 - b) Mass production
 - c) Batch production
 - d) Continuous
- 8) Gilbreth contributed to _____.
 - a) Motion study
 - b) Time study
 - c) Project study
 - d) Value engg.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Engineering (BTN02504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Use of calculator is allowed.
 3) Figures to right indicate full marks.
 4) Assume additional suitable data, if necessary and mention it clearly.

Section – I

- Q.2** a) What are the types of charts used in method study? Explain any one chart with suitable example. **07**
 b) Explain Critical Examination steps in Method Study. **07**
- Q.3** a) Explain Design of Workplace with neat sketch. **07**
 b) What is meant by Accident? Explain in brief about Prevention of accident. **07**
- Q.4** a) Define Work Study and Explain steps in work study. **07**
 b) Explain in brief contribution of Taylor's and Gilbreth in development of industrial engineering. **07**

Section – II

- Q.5** a) Explain various factors affecting on site selection. **07**
 b) Define Plant Layout. What are the types of Plant layout? Explain any two with neat sketch. **07**
- Q.6** a) What is job evolution? Explain any two methods of job evaluation. **07**
 b) What are the objectives of merit rating? Explain any two methods of merit rating. **07**
- Q.7** a) The observed time and performance rating of a time study is given below **07**

Elements	1	2	3	4	5
Observed time (min.)	0.2	0.08	0.6	0.12	0.10
Performance rating	80	85	95	80	85

Assume: Relaxation allowance - 15%
 Contingency allowance - 7%
 Interference allowance - 5%

Calculate Standard Time

- b) What is allowance? What are the various types of allowance? Explain in brief. **07**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Gas turbines are classified based on:

a) Fuel type	b) Power output
c) Compression ratio	d) All of the above
- 2) When comparing gas turbines to steam turbines, which statement is true?
 - a) Gas turbines have higher efficiency
 - b) Gas turbines have lower power-to-weight ratios
 - c) Gas turbines are less expensive to operate
 - d) Gas turbines require more maintenance
- 3) What is the Brayton cycle?
 - a) A thermodynamic cycle used in refrigeration systems
 - b) A thermodynamic cycle used in gas turbine engines
 - c) A thermodynamic cycle used in steam turbines
 - d) A thermodynamic cycle used in diesel engines
- 4) Which parameter has the most significant impact on the performance of the gas turbine cycle?

a) Pressure ratio	b) Turbine inlet temperature
c) Compressor efficiency	d) Cooling effectiveness
- 5) What is the purpose of intercooling in the gas turbine cycle?
 - a) To increase compressor efficiency
 - b) To decrease compressor work input
 - c) To decrease turbine inlet temperature
 - d) To increase turbine work output
- 6) Flow through a convergent-divergent nozzle is used for:
 - a) Subsonic flow only
 - b) Supersonic flow only
 - c) Both subsonic and supersonic flow
 - d) Flow with constant velocity

- 7) What are total or stagnation properties in fluid dynamics?
- Properties of the fluid at a point where the velocity is zero
 - Properties of the fluid at a point where the pressure is zero
 - Properties of the fluid at a point where the temperature is zero
 - Properties of the fluid at a point where the velocity is equal to the speed of sound
- 8) How does a centrifugal compressor work?
- By increasing the pressure of the fluid using centrifugal force
 - By reducing the pressure of the fluid using centrifugal force
 - By compressing the fluid using axial flow
 - By compressing the fluid using reciprocating motion
- 9) What does the slip factor represent in centrifugal compressors?
- Efficiency of the compressor
 - Ratio of actual velocity to theoretical velocity
 - Ratio of pressure rise to temperature rise
 - Ratio of impeller width to blade angle
- 10) What components are typically found in an axial flow compressor?
- Impeller and diffuser
 - Rotor and stator
 - Inlet and outlet pipes
 - Turbine and combustion chamber
- 11) What relation between blade angles is required for a 50% degree of reaction in an axial flow compressor?
- $\beta_1 = \beta_2$
 - $\beta_1 + \beta_2 = 50^\circ$
 - $\beta_1 = 2\beta_2$
 - $\beta_1 - \beta_2 = 50^\circ$
- 12) What is the key difference between axial flow compressors and centrifugal compressors?
- Axial compressors have a higher pressure ratio
 - Axial compressors have a higher efficiency
 - Axial compressors have a straight flow path
 - Axial compressors have a radial flow path
- 13) What are the requirements for materials used in gas turbines?
- High thermal conductivity and low strength
 - Low thermal conductivity and high strength
 - High thermal conductivity and high strength
 - Low thermal conductivity and low strength
- 14) What types of combustion chambers are commonly used in gas turbines?
- Open and closed
 - Annular and can-annular
 - Cylindrical and spherical
 - Vertical and horizontal

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

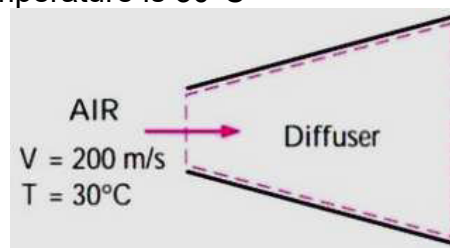
Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data if necessary and mention it clearly.
 4) Use of a calculator is allowed.

Section – I

Q.2 Attempt any two questions. 14

- Explain the classification of gas turbines.
- Derive the expression for the thermal efficiency of the Brayton cycle.
- Explore methods of improving the thermal efficiency and specific work output of gas turbine cycle.
- Air enters a diffuser shown in Fig. with a velocity of 200 m/s. Determine (a) the speed of sound and (b) the Mach number at the diffuser inlet when the air temperature is 30°C



Q.3 Attempt any two questions 14

- Analyze the differences between gas turbines and steam turbines.
- Air at temperature of 15°C enters a gas turbine plant working at pressure ratio of 15. Turbine inlet temperature is 1250°C. Polytropic efficiency (i.e. small stage efficiency) of compressor and turbine is 0.91. Assume $c_p = 1.005$ and 1.128 for air and gases respectively and calorific value of fuel used = 42000 kJ/kg of fuel, Calculate: (a) overall efficiency (b) specific output (c) fuel to air ratio and (d) specific fuel consumption.
- Explain the fundamental concepts such as the velocity of sound, Mach number, and Mach angle.
- Investigate the behavior of isentropic flow in a passage of variable cross-sectional area.

Section – II

- Q.4 Attempt any two questions.** **14**
- a) Provide a detailed overview of the combustion process in gas turbines.
 - b) Describe the construction and working of a centrifugal compressor.
 - c) Draw and label a velocity diagram for a centrifugal compressor. Derive equation to calculate Euler's Work.
 - d) Find the polytropic efficiency of an axial flow compressor from the following data:
The total head pressure ratio = 4
Overall total head isentropic efficiency = 85%
Total head inlet temperature = 290K
The inlet and outlet air angles from the rotor blades of the above compressor are 10° and 45° respectively. The rotor and stator blades are symmetrical. The mean blade speed and axial velocity remain constant throughout the compressor. Assuming a value of 220 m/s for blade speed and the work done factor as 0.86, find the number of stages required.
- Q.5 Attempt any two questions** **14**
- a) Explore the different types of combustion chambers used in gas turbines.
 - b) Discuss the working principle of axial flow compressor with the help of T- S representation.
 - c) A centrifugal compressor has a pressure ratio of 4:1 with an isentropic efficiency of 80% when running at 15000 rpm and inducing air at 293 K. Curved vanes at inlet give the air a prewhirl of 25° to the axial direction at all radii and the mean dia. of eye is 250 mm. The absolute air velocity at inlet is 150 m/s. Impeller tip dia. is 600 mm. Calculate the slip factor.
 - d) Give a comparison between centrifugal and axial flow compressor.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) How does a centrifugal compressor work?
 - a) By increasing the pressure of the fluid using centrifugal force
 - b) By reducing the pressure of the fluid using centrifugal force
 - c) By compressing the fluid using axial flow
 - d) By compressing the fluid using reciprocating motion
- 2) What does the slip factor represent in centrifugal compressors?
 - a) Efficiency of the compressor
 - b) Ratio of actual velocity to theoretical velocity
 - c) Ratio of pressure rise to temperature rise
 - d) Ratio of impeller width to blade angle
- 3) What components are typically found in an axial flow compressor?
 - a) Impeller and diffuser
 - b) Rotor and stator
 - c) Inlet and outlet pipes
 - d) Turbine and combustion chamber
- 4) What relation between blade angles is required for a 50% degree of reaction in an axial flow compressor?

a) $\beta_1 = \beta_2$	b) $\beta_1 + \beta_2 = 50^\circ$
c) $\beta_1 = 2\beta_2$	d) $\beta_1 - \beta_2 = 50^\circ$
- 5) What is the key difference between axial flow compressors and centrifugal compressors?
 - a) Axial compressors have a higher pressure ratio
 - b) Axial compressors have a higher efficiency
 - c) Axial compressors have a straight flow path
 - d) Axial compressors have a radial flow path
- 6) What are the requirements for materials used in gas turbines?
 - a) High thermal conductivity and low strength
 - b) Low thermal conductivity and high strength
 - c) High thermal conductivity and high strength
 - d) Low thermal conductivity and low strength

- 7) What types of combustion chambers are commonly used in gas turbines?
a) Open and closed
b) Annular and can-annular
c) Cylindrical and spherical
d) Vertical and horizontal
- 8) Gas turbines are classified based on:
a) Fuel type
b) Power output
c) Compression ratio
d) All of the above
- 9) When comparing gas turbines to steam turbines, which statement is true?
a) Gas turbines have higher efficiency
b) Gas turbines have lower power-to-weight ratios
c) Gas turbines are less expensive to operate
d) Gas turbines require more maintenance
- 10) What is the Brayton cycle?
a) A thermodynamic cycle used in refrigeration systems
b) A thermodynamic cycle used in gas turbine engines
c) A thermodynamic cycle used in steam turbines
d) A thermodynamic cycle used in diesel engines
- 11) Which parameter has the most significant impact on the performance of the gas turbine cycle?
a) Pressure ratio
b) Turbine inlet temperature
c) Compressor efficiency
d) Cooling effectiveness
- 12) What is the purpose of intercooling in the gas turbine cycle?
a) To increase compressor efficiency
b) To decrease compressor work input
c) To decrease turbine inlet temperature
d) To increase turbine work output
- 13) Flow through a convergent-divergent nozzle is used for:
a) Subsonic flow only
b) Supersonic flow only
c) Both subsonic and supersonic flow
d) Flow with constant velocity
- 14) What are total or stagnation properties in fluid dynamics?
a) Properties of the fluid at a point where the velocity is zero
b) Properties of the fluid at a point where the pressure is zero
c) Properties of the fluid at a point where the temperature is zero
d) Properties of the fluid at a point where the velocity is equal to the speed of sound

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

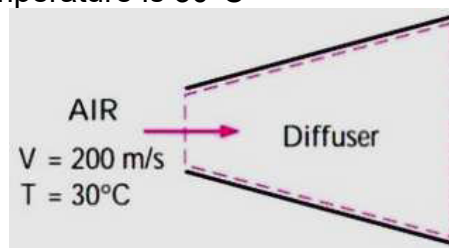
Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data if necessary and mention it clearly.
 4) Use of a calculator is allowed.

Section – I

Q.2 Attempt any two questions. 14

- Explain the classification of gas turbines.
- Derive the expression for the thermal efficiency of the Brayton cycle.
- Explore methods of improving the thermal efficiency and specific work output of gas turbine cycle.
- Air enters a diffuser shown in Fig. with a velocity of 200 m/s. Determine (a) the speed of sound and (b) the Mach number at the diffuser inlet when the air temperature is 30°C



Q.3 Attempt any two questions 14

- Analyze the differences between gas turbines and steam turbines.
- Air at temperature of 15°C enters a gas turbine plant working at pressure ratio of 15. Turbine inlet temperature is 1250°C. Polytropic efficiency (i.e. small stage efficiency) of compressor and turbine is 0.91. Assume $c_p = 1.005$ and 1.128 for air and gases respectively and calorific value of fuel used = 42000 kJ/kg of fuel, Calculate: (a) overall efficiency (b) specific output (c) fuel to air ratio and (d) specific fuel consumption.
- Explain the fundamental concepts such as the velocity of sound, Mach number, and Mach angle.
- Investigate the behavior of isentropic flow in a passage of variable cross-sectional area.

Section – II

- Q.4 Attempt any two questions.** **14**
- a) Provide a detailed overview of the combustion process in gas turbines.
 - b) Describe the construction and working of a centrifugal compressor.
 - c) Draw and label a velocity diagram for a centrifugal compressor. Derive equation to calculate Euler's Work.
 - d) Find the polytropic efficiency of an axial flow compressor from the following data:
The total head pressure ratio = 4
Overall total head isentropic efficiency = 85%
Total head inlet temperature = 290K
The inlet and outlet air angles from the rotor blades of the above compressor are 10° and 45° respectively. The rotor and stator blades are symmetrical. The mean blade speed and axial velocity remain constant throughout the compressor. Assuming a value of 220 m/s for blade speed and the work done factor as 0.86, find the number of stages required.
- Q.5 Attempt any two questions** **14**
- a) Explore the different types of combustion chambers used in gas turbines.
 - b) Discuss the working principle of axial flow compressor with the help of T- S representation.
 - c) A centrifugal compressor has a pressure ratio of 4:1 with an isentropic efficiency of 80% when running at 15000 rpm and inducing air at 293 K. Curved vanes at inlet give the air a prewhirl of 25° to the axial direction at all radii and the mean dia. of eye is 250 mm. The absolute air velocity at inlet is 150 m/s. Impeller tip dia. is 600 mm. Calculate the slip factor.
 - d) Give a comparison between centrifugal and axial flow compressor.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What relation between blade angles is required for a 50% degree of reaction in an axial flow compressor?

a) $\beta_1 = \beta_2$	b) $\beta_1 + \beta_2 = 50^\circ$
c) $\beta_1 = 2\beta_2$	d) $\beta_1 - \beta_2 = 50^\circ$
- 2) What is the key difference between axial flow compressors and centrifugal compressors?
 - a) Axial compressors have a higher pressure ratio
 - b) Axial compressors have a higher efficiency
 - c) Axial compressors have a straight flow path
 - d) Axial compressors have a radial flow path
- 3) What are the requirements for materials used in gas turbines?
 - a) High thermal conductivity and low strength
 - b) Low thermal conductivity and high strength
 - c) High thermal conductivity and high strength
 - d) Low thermal conductivity and low strength
- 4) What types of combustion chambers are commonly used in gas turbines?

a) Open and closed	b) Annular and can-annular
c) Cylindrical and spherical	d) Vertical and horizontal
- 5) Gas turbines are classified based on:

a) Fuel type	b) Power output
c) Compression ratio	d) All of the above
- 6) When comparing gas turbines to steam turbines, which statement is true?
 - a) Gas turbines have higher efficiency
 - b) Gas turbines have lower power-to-weight ratios
 - c) Gas turbines are less expensive to operate
 - d) Gas turbines require more maintenance

- 7) What is the Brayton cycle?
- A thermodynamic cycle used in refrigeration systems
 - A thermodynamic cycle used in gas turbine engines
 - A thermodynamic cycle used in steam turbines
 - A thermodynamic cycle used in diesel engines
- 8) Which parameter has the most significant impact on the performance of the gas turbine cycle?
- Pressure ratio
 - Turbine inlet temperature
 - Compressor efficiency
 - Cooling effectiveness
- 9) What is the purpose of intercooling in the gas turbine cycle?
- To increase compressor efficiency
 - To decrease compressor work input
 - To decrease turbine inlet temperature
 - To increase turbine work output
- 10) Flow through a convergent-divergent nozzle is used for:
- Subsonic flow only
 - Supersonic flow only
 - Both subsonic and supersonic flow
 - Flow with constant velocity
- 11) What are total or stagnation properties in fluid dynamics?
- Properties of the fluid at a point where the velocity is zero
 - Properties of the fluid at a point where the pressure is zero
 - Properties of the fluid at a point where the temperature is zero
 - Properties of the fluid at a point where the velocity is equal to the speed of sound
- 12) How does a centrifugal compressor work?
- By increasing the pressure of the fluid using centrifugal force
 - By reducing the pressure of the fluid using centrifugal force
 - By compressing the fluid using axial flow
 - By compressing the fluid using reciprocating motion
- 13) What does the slip factor represent in centrifugal compressors?
- Efficiency of the compressor
 - Ratio of actual velocity to theoretical velocity
 - Ratio of pressure rise to temperature rise
 - Ratio of impeller width to blade angle
- 14) What components are typically found in an axial flow compressor?
- Impeller and diffuser
 - Rotor and stator
 - Inlet and outlet pipes
 - Turbine and combustion chamber

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

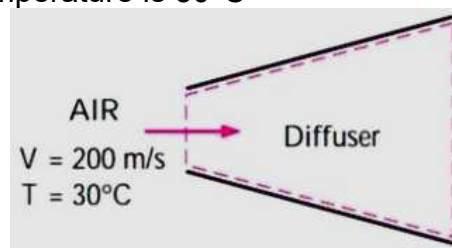
Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data if necessary and mention it clearly.
 4) Use of a calculator is allowed.

Section – I

Q.2 Attempt any two questions. 14

- Explain the classification of gas turbines.
- Derive the expression for the thermal efficiency of the Brayton cycle.
- Explore methods of improving the thermal efficiency and specific work output of gas turbine cycle.
- Air enters a diffuser shown in Fig. with a velocity of 200 m/s. Determine (a) the speed of sound and (b) the Mach number at the diffuser inlet when the air temperature is 30°C



Q.3 Attempt any two questions 14

- Analyze the differences between gas turbines and steam turbines.
- Air at temperature of 15°C enters a gas turbine plant working at pressure ratio of 15. Turbine inlet temperature is 1250°C. Polytropic efficiency (i.e. small stage efficiency) of compressor and turbine is 0.91. Assume $c_p = 1.005$ and 1.128 for air and gases respectively and calorific value of fuel used = 42000 kJ/kg of fuel, Calculate: (a) overall efficiency (b) specific output (c) fuel to air ratio and (d) specific fuel consumption.
- Explain the fundamental concepts such as the velocity of sound, Mach number, and Mach angle.
- Investigate the behavior of isentropic flow in a passage of variable cross-sectional area.

Section – II

- Q.4 Attempt any two questions.** **14**
- a) Provide a detailed overview of the combustion process in gas turbines.
 - b) Describe the construction and working of a centrifugal compressor.
 - c) Draw and label a velocity diagram for a centrifugal compressor. Derive equation to calculate Euler's Work.
 - d) Find the polytropic efficiency of an axial flow compressor from the following data:
The total head pressure ratio = 4
Overall total head isentropic efficiency = 85%
Total head inlet temperature = 290K
The inlet and outlet air angles from the rotor blades of the above compressor are 10° and 45° respectively. The rotor and stator blades are symmetrical. The mean blade speed and axial velocity remain constant throughout the compressor. Assuming a value of 220 m/s for blade speed and the work done factor as 0.86, find the number of stages required.
- Q.5 Attempt any two questions** **14**
- a) Explore the different types of combustion chambers used in gas turbines.
 - b) Discuss the working principle of axial flow compressor with the help of T- S representation.
 - c) A centrifugal compressor has a pressure ratio of 4:1 with an isentropic efficiency of 80% when running at 15000 rpm and inducing air at 293 K. Curved vanes at inlet give the air a prewhirl of 25° to the axial direction at all radii and the mean dia. of eye is 250 mm. The absolute air velocity at inlet is 150 m/s. Impeller tip dia. is 600 mm. Calculate the slip factor.
 - d) Give a comparison between centrifugal and axial flow compressor.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Flow through a convergent-divergent nozzle is used for:
 - a) Subsonic flow only
 - b) Supersonic flow only
 - c) Both subsonic and supersonic flow
 - d) Flow with constant velocity
- 2) What are total or stagnation properties in fluid dynamics?
 - a) Properties of the fluid at a point where the velocity is zero
 - b) Properties of the fluid at a point where the pressure is zero
 - c) Properties of the fluid at a point where the temperature is zero
 - d) Properties of the fluid at a point where the velocity is equal to the speed of sound
- 3) How does a centrifugal compressor work?
 - a) By increasing the pressure of the fluid using centrifugal force
 - b) By reducing the pressure of the fluid using centrifugal force
 - c) By compressing the fluid using axial flow
 - d) By compressing the fluid using reciprocating motion
- 4) What does the slip factor represent in centrifugal compressors?
 - a) Efficiency of the compressor
 - b) Ratio of actual velocity to theoretical velocity
 - c) Ratio of pressure rise to temperature rise
 - d) Ratio of impeller width to blade angle
- 5) What components are typically found in an axial flow compressor?
 - a) Impeller and diffuser
 - b) Rotor and stator
 - c) Inlet and outlet pipes
 - d) Turbine and combustion chamber
- 6) What relation between blade angles is required for a 50% degree of reaction in an axial flow compressor?

a) $\beta_1 = \beta_2$	b) $\beta_1 + \beta_2 = 50^\circ$
c) $\beta_1 = 2\beta_2$	d) $\beta_1 - \beta_2 = 50^\circ$

- 7) What is the key difference between axial flow compressors and centrifugal compressors?
- axial compressors have a higher pressure ratio
 - axial compressors have a higher efficiency
 - axial compressors have a straight flow path
 - axial compressors have a radial flow path
- 8) What are the requirements for materials used in gas turbines?
- High thermal conductivity and low strength
 - Low thermal conductivity and high strength
 - High thermal conductivity and high strength
 - Low thermal conductivity and low strength
- 9) What types of combustion chambers are commonly used in gas turbines?
- Open and closed
 - Annular and can-annular
 - Cylindrical and spherical
 - Vertical and horizontal
- 10) Gas turbines are classified based on:
- Fuel type
 - Power output
 - Compression ratio
 - All of the above
- 11) When comparing gas turbines to steam turbines, which statement is true?
- Gas turbines have higher efficiency
 - Gas turbines have lower power-to-weight ratios
 - Gas turbines are less expensive to operate
 - Gas turbines require more maintenance
- 12) What is the Brayton cycle?
- A thermodynamic cycle used in refrigeration systems
 - A thermodynamic cycle used in gas turbine engines
 - A thermodynamic cycle used in steam turbines
 - A thermodynamic cycle used in diesel engines
- 13) Which parameter has the most significant impact on the performance of the gas turbine cycle?
- Pressure ratio
 - Turbine inlet temperature
 - Compressor efficiency
 - Cooling effectiveness
- 14) What is the purpose of intercooling in the gas turbine cycle?
- To increase compressor efficiency
 - To decrease compressor work input
 - To decrease turbine inlet temperature
 - To increase turbine work output

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
GAS TURBINES (BTN02514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

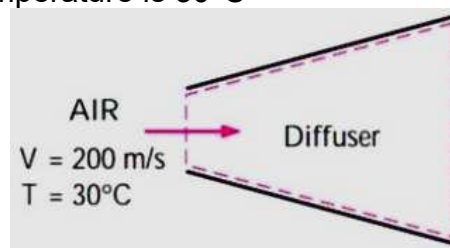
Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.
 3) Assume suitable data if necessary and mention it clearly.
 4) Use of a calculator is allowed.

Section – I

Q.2 Attempt any two questions. 14

- Explain the classification of gas turbines.
- Derive the expression for the thermal efficiency of the Brayton cycle.
- Explore methods of improving the thermal efficiency and specific work output of gas turbine cycle.
- Air enters a diffuser shown in Fig. with a velocity of 200 m/s. Determine (a) the speed of sound and (b) the Mach number at the diffuser inlet when the air temperature is 30°C



Q.3 Attempt any two questions 14

- Analyze the differences between gas turbines and steam turbines.
- Air at temperature of 15°C enters a gas turbine plant working at pressure ratio of 15. Turbine inlet temperature is 1250°C. Polytropic efficiency (i.e. small stage efficiency) of compressor and turbine is 0.91. Assume $c_p = 1.005$ and 1.128 for air and gases respectively and calorific value of fuel used = 42000 kJ/kg of fuel, Calculate: (a) overall efficiency (b) specific output (c) fuel to air ratio and (d) specific fuel consumption.
- Explain the fundamental concepts such as the velocity of sound, Mach number, and Mach angle.
- Investigate the behavior of isentropic flow in a passage of variable cross-sectional area.

Section – II

- Q.4 Attempt any two questions.** **14**
- a) Provide a detailed overview of the combustion process in gas turbines.
 - b) Describe the construction and working of a centrifugal compressor.
 - c) Draw and label a velocity diagram for a centrifugal compressor. Derive equation to calculate Euler's Work.
 - d) Find the polytropic efficiency of an axial flow compressor from the following data:
The total head pressure ratio = 4
Overall total head isentropic efficiency = 85%
Total head inlet temperature = 290K
The inlet and outlet air angles from the rotor blades of the above compressor are 10° and 45° respectively. The rotor and stator blades are symmetrical. The mean blade speed and axial velocity remain constant throughout the compressor. Assuming a value of 220 m/s for blade speed and the work done factor as 0.86, find the number of stages required.
- Q.5 Attempt any two questions** **14**
- a) Explore the different types of combustion chambers used in gas turbines.
 - b) Discuss the working principle of axial flow compressor with the help of T- S representation.
 - c) A centrifugal compressor has a pressure ratio of 4:1 with an isentropic efficiency of 80% when running at 15000 rpm and inducing air at 293 K. Curved vanes at inlet give the air a prewhirl of 25° to the axial direction at all radii and the mean dia. of eye is 250 mm. The absolute air velocity at inlet is 150 m/s. Impeller tip dia. is 600 mm. Calculate the slip factor.
 - d) Give a comparison between centrifugal and axial flow compressor.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Tool Engineering (BTN02515)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book).
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 A) Attempt the following single correct answer type questions. (Each question carries one mark) 06

- 1) Elements in press tool which strip out material _____.
 - a) Die
 - b) Punch
 - c) Stripper
 - d) Back Plate
- 2) In metal cutting operation, minimum heat is generated in _____.
 - a) the shear zone
 - b) the chip-tool interface zone
 - c) the tool-work interface zone
 - d) none of the above
- 3) Tool signature consists of seven elements of geometry.
 - a) True
 - b) False
- 4) Break - even analysis it is necessary for deciding _____.
 - a) Profit and loss
 - b) Economic Order
 - c) Inventory carry cost
 - d) All the above
- 5) For blanking operation clearance is not provided on _____.
 - a) Die
 - b) Punch
 - c) Die & Punch
 - d) None of the above
- 6) A device, in which a component is held and located for tapping operation and bushes are integrated that guide the tool, is called as _____.
 - a) Jig
 - b) Fixture
 - c) both a and b
 - d) none of the above

B) Attempt the following multiple choice correct answer type questions. 08
(Each question carries two marks)

- 7) In metal cutting while drawing merchant circle number of assumptions as follows _____.
- a) The cutting velocity remains constant
 - b) Continuous chip without built up edge
 - c) No constant cutting velocity
 - d) Continuous chip with built up edge
- 8) In jig or fixture pin locater is used for _____.
- a) Clamping round job
 - b) Locate the flat job
 - c) Locating round job
 - d) No use of pin locater
- 9) In press tool the main purpose of stripper _____.
- a) to guide punch
 - b) to guide strip
 - c) to strip out the material
 - d) to hold the punch
- 10) In Jig or fixture diamond pin locater is used when _____.
- a) There is two already machined parallel holes in work piece
 - b) Two or more than two parallel holes in work piece
 - c) One hole is already machined in work piece
 - d) No hole is exist in the work piece

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Tool Engineering (BTN02515)

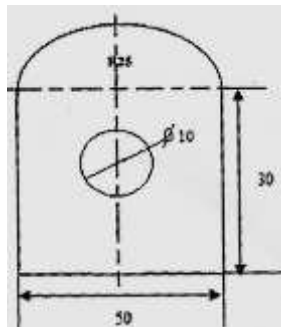
Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.

Section – I

- Q.2 a)** Design a press tool for the component shown in Fig-I giving following details. **14**
- Cutting force
 - Clearance between punch and die
 - Stripping force and no of bolts and bolt size need for die clamping
 - Strip layout and % material utilization



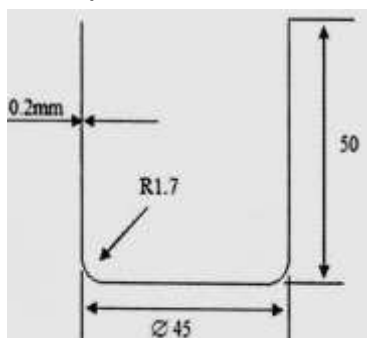
Material: - M.S.
 Thickness = 6mm
 Shear strength = 46 kg/ mm²

Fig - I

Also draw one sectional view of assembly of press tool and part name.

OR

- b)** Design a draw tool for given component Fig-II also calculate the following **14**
 (draw one sectional view of assembly)
- Blank size
 - No of draws
 - draw ratio
 - drawing force
 - Blank force
 - die and punch clearance



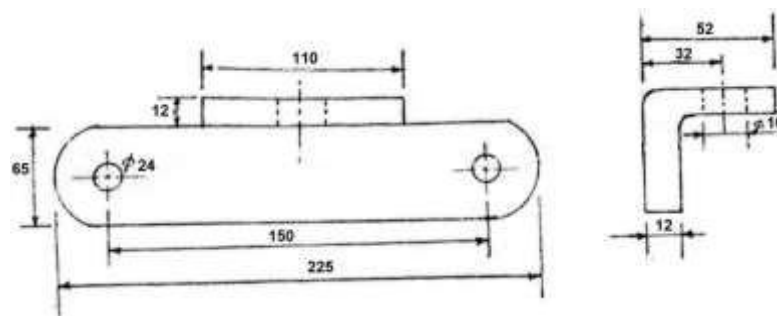
Material - M.S.
 Material Thickness - 0.2
 Yield strength = 40 kg/ mm²

Fig - II

- Q.3 a)** The following observations were made during on orthogonal cutting operation. **04**
 i) rake angle - 15°
 ii) shear angle - 30°
 iii) cutting force - 300N
 iv) feed force - 120N
 v) cutting velocity = 100 m/min
 Determine
 i) shear strain
 ii) work done in shear
- b)** Sketch and explain in brief about types of chips in metal cutting. **03**
- Q.4 a)** While turning die 20 mm bar at 400 rpm. With H.S.S. tool a tool life of 9 min. when same bar was Turned at 250 rpm. What will be tool life at same speed? Where $n = 0.108$ **03**
- b)** Explain in brief difference between carbide and HSS tool material. **04**
- Q.5 Writes a short note on (Any Two)** **07**
 a) Bending die
 b) Merchant circle
 c) Draw tool and press tool

Section – II

- Q.6 a)** Design drill jig for drilling die 10-hole draw one view of sectional assembly with parts name. **14**



OR

- b)** Design milling fixture for milling 110×12 face draws one view of sectional assembly with parts name. **14**
- Q.7 a)** Explain in brief about EOQ. **04**
b) Explain in brief about geometry of single point cutting tool. **03**
- Q.8 a)** With neat sketch explain in brief about any two clamping devices used in jig or fixture. **04**
b) Explain with neat sketch extended and slip bush used in jig. **03**
- Q.9 Write short notes on (Any Two)** **07**
 a) Types of fixture & its application
 b) Effect of tool geometry on tool life
 c) Difference between jig and fixture

B) Attempt the following multiple choice correct answer type questions. 08
(Each question carries two marks)

- 7) In jig or fixture pin locater is used for _____.
a) Clamping round job b) Locate the flat job
c) Locating round job d) No use of pin locater
- 8) In press tool the main purpose of stripper _____.
a) to guide punch b) to guide strip
c) to strip out the material d) to hold the punch
- 9) In Jig or fixture diamond pin locater is used when _____.
a) There is two already machined parallel holes in work piece
b) Two or more than two parallel holes in work piece
c) One hole is already machined in work piece
d) No hole is exist in the work piece
- 10) In metal cutting while drawing merchant circle number of assumptions as follows _____.
a) The cutting velocity remains constant
b) Continuous chip without built up edge
c) No constant cutting velocity
d) Continuous chip with built up edge

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Tool Engineering (BTN02515)

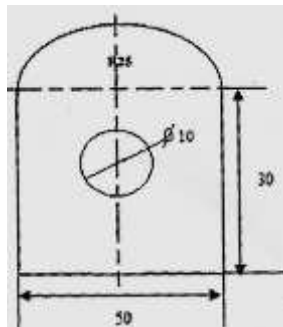
Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.

Section – I

- Q.2 a)** Design a press tool for the component shown in Fig-I giving following details. **14**
- Cutting force
 - Clearance between punch and die
 - Stripping force and no of bolts and bolt size need for die clamping
 - Strip layout and % material utilization



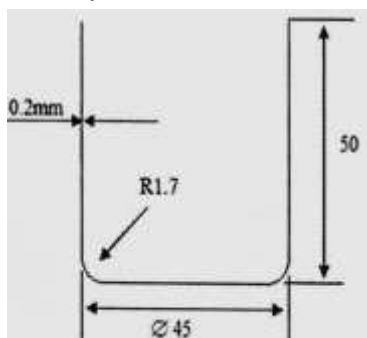
Material: - M.S.
 Thickness = 6mm
 Shear strength = 46 kg/ mm²

Fig - I

Also draw one sectional view of assembly of press tool and part name.

OR

- b)** Design a draw tool for given component Fig-II also calculate the following **14**
 (draw one sectional view of assembly)
- Blank size
 - No of draws
 - draw ratio
 - drawing force
 - Blank force
 - die and punch clearance



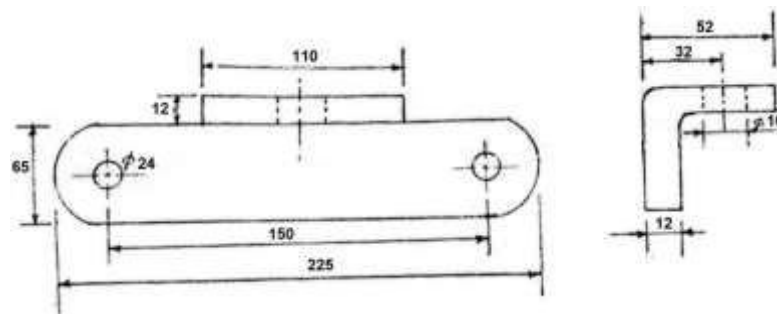
Material - M.S.
 Material Thickness - 0.2
 Yield strength = 40 kg/ mm²

Fig - II

- Q.3** a) The following observations were made during on orthogonal cutting operation. **04**
 i) rake angle - 15°
 ii) shear angle - 30°
 iii) cutting force - 300N
 iv) feed force - 120N
 v) cutting velocity = 100 m/min
 Determine
 i) shear strain
 ii) work done in shear
- b) Sketch and explain in brief about types of chips in metal cutting. **03**
- Q.4** a) While turning die 20 mm bar at 400 rpm. With H.S.S. tool a tool life of 9 min. when same bar was Turned at 250 rpm. What will be tool life at same speed? Where $n = 0.108$ **03**
- b) Explain in brief difference between carbide and HSS tool material. **04**
- Q.5** Writes a short note on (Any Two) **07**
 a) Bending die
 b) Merchant circle
 c) Draw tool and press tool

Section – II

- Q.6** a) Design drill jig for drilling die 10-hole draw one view of sectional assembly with parts name. **14**



OR

- b) Design milling fixture for milling 110×12 face draws one view of sectional assembly with parts name. **14**
- Q.7** a) Explain in brief about EOQ. **04**
 b) Explain in brief about geometry of single point cutting tool. **03**
- Q.8** a) With neat sketch explain in brief about any two clamping devices used in jig or fixture. **04**
 b) Explain with neat sketch extended and slip bush used in jig. **03**
- Q.9** Write short notes on (Any Two) **07**
 a) Types of fixture & its application
 b) Effect of tool geometry on tool life
 c) Difference between jig and fixture

B) Attempt the following multiple choice correct answer type questions. 08

(Each question carries two marks)

- 7) In press tool the main purpose of stripper _____.
- a) to guide punch
 - b) to guide strip
 - c) to strip out the material
 - d) to hold the punch
- 8) In Jig or fixture diamond pin locator is used when _____.
- a) There is two already machined parallel holes in work piece
 - b) Two or more than two parallel holes in work piece
 - c) One hole is already machined in work piece
 - d) No hole is exist in the work piece
- 9) In metal cutting while drawing merchant circle number of assumptions as follows _____.
- a) The cutting velocity remains constant
 - b) Continuous chip without built up edge
 - c) No constant cutting velocity
 - d) Continuous chip with built up edge
- 10) In jig or fixture pin locator is used for _____.
- a) Clamping round job
 - b) Locate the flat job
 - c) Locating round job
 - d) No use of pin locator

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Tool Engineering (BTN02515)

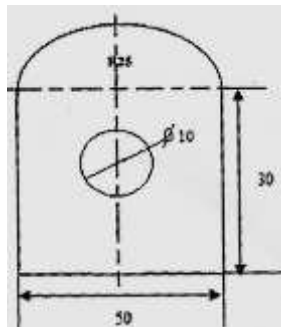
Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.

Section – I

- Q.2 a)** Design a press tool for the component shown in Fig-I giving following details. **14**
- Cutting force
 - Clearance between punch and die
 - Stripping force and no of bolts and bolt size need for die clamping
 - Strip layout and % material utilization



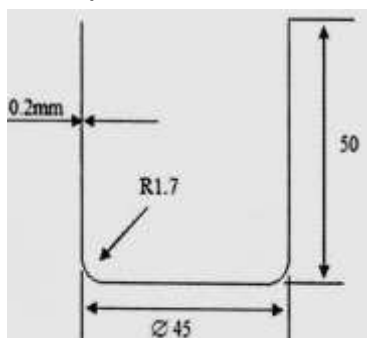
Material: - M.S.
 Thickness = 6mm
 Shear strength = 46 kg/ mm²

Fig - I

Also draw one sectional view of assembly of press tool and part name.

OR

- b)** Design a draw tool for given component Fig-II also calculate the following **14**
 (draw one sectional view of assembly)
- Blank size
 - No of draws
 - draw ratio
 - drawing force
 - Blank force
 - die and punch clearance



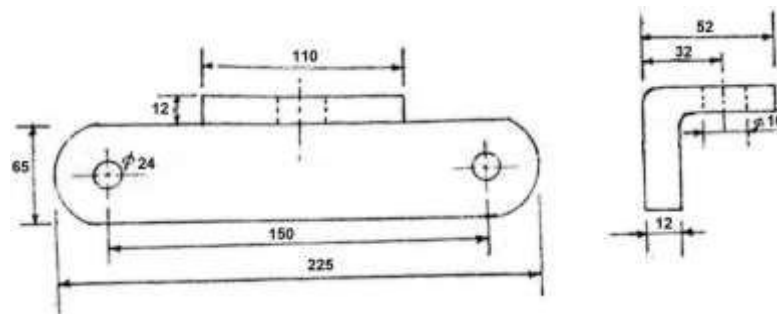
Material - M.S.
 Material Thickness - 0.2
 Yield strength = 40 kg/ mm²

Fig - II

- Q.3** a) The following observations were made during on orthogonal cutting operation. **04**
 i) rake angle - 15°
 ii) shear angle - 30°
 iii) cutting force - 300N
 iv) feed force - 120N
 v) cutting velocity = 100 m/min
 Determine
 i) shear strain
 ii) work done in shear
- b) Sketch and explain in brief about types of chips in metal cutting. **03**
- Q.4** a) While turning die 20 mm bar at 400 rpm. With H.S.S. tool a tool life of 9 min. when same bar was Turned at 250 rpm. What will be tool life at same speed? Where $n = 0.108$ **03**
- b) Explain in brief difference between carbide and HSS tool material. **04**
- Q.5** Writes a short note on (Any Two) **07**
 a) Bending die
 b) Merchant circle
 c) Draw tool and press tool

Section – II

- Q.6** a) Design drill jig for drilling die 10-hole draw one view of sectional assembly with parts name. **14**



OR

- b) Design milling fixture for milling 110×12 face draws one view of sectional assembly with parts name. **14**
- Q.7** a) Explain in brief about EOQ. **04**
 b) Explain in brief about geometry of single point cutting tool. **03**
- Q.8** a) With neat sketch explain in brief about any two clamping devices used in jig or fixture. **04**
 b) Explain with neat sketch extended and slip bush used in jig. **03**
- Q.9** Write short notes on (Any Two) **07**
 a) Types of fixture & its application
 b) Effect of tool geometry on tool life
 c) Difference between jig and fixture

B) Attempt the following multiple choice correct answer type questions. 08
(Each question carries two marks)

- 7) In Jig or fixture diamond pin locater is used when _____.
a) There is two already machined parallel holes in work piece
b) Two or more than two parallel holes in work piece
c) One hole is already machined in work piece
d) No hole is exist in the work piece
- 8) In metal cutting while drawing merchant circle number of assumptions as follows _____.
a) The cutting velocity remains constant
b) Continuous chip without built up edge
c) No constant cutting velocity
d) Continuous chip with built up edge
- 9) In jig or fixture pin locater is used for _____.
a) Clamping round job b) Locate the flat job
c) Locating round job d) No use of pin locater
- 10) In press tool the main purpose of stripper _____.
a) to guide punch b) to guide strip
c) to strip out the material d) to hold the punch

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Tool Engineering (BTN02515)

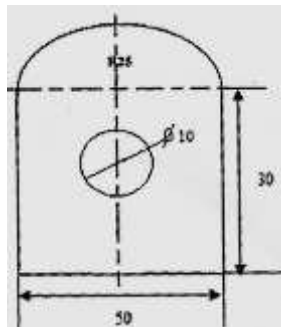
Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 3, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.

Section – I

- Q.2 a)** Design a press tool for the component shown in Fig-I giving following details. **14**
- Cutting force
 - Clearance between punch and die
 - Stripping force and no of bolts and bolt size need for die clamping
 - Strip layout and % material utilization



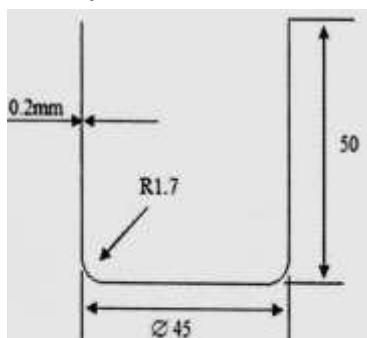
Material: - M.S.
 Thickness = 6mm
 Shear strength = 46 kg/ mm²

Fig - I

Also draw one sectional view of assembly of press tool and part name.

OR

- b)** Design a draw tool for given component Fig-II also calculate the following **14**
 (draw one sectional view of assembly)
- Blank size
 - No of draws
 - draw ratio
 - drawing force
 - Blank force
 - die and punch clearance



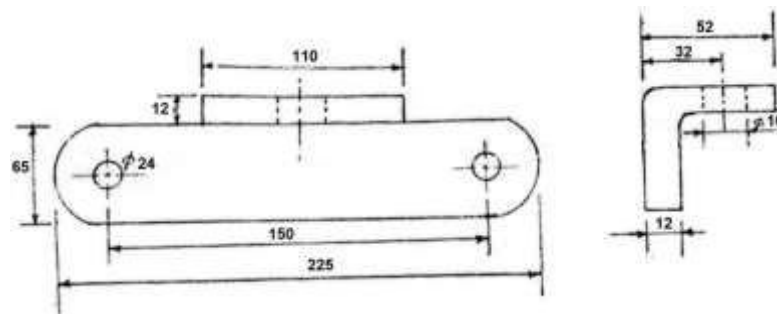
Material - M.S.
 Material Thickness - 0.2
 Yield strength = 40 kg/ mm²

Fig - II

- Q.3 a)** The following observations were made during on orthogonal cutting operation. **04**
- i) rake angle - 15°
 - ii) shear angle - 30°
 - iii) cutting force - 300N
 - iv) feed force - 120N
 - v) cutting velocity = 100 m/min
- Determine
- i) shear strain
 - ii) work done in shear
- b)** Sketch and explain in brief about types of chips in metal cutting. **03**
- Q.4 a)** While turning die 20 mm bar at 400 rpm. With H.S.S. tool a tool life of 9 min. when same bar was Turned at 250 rpm. What will be tool life at same speed? Where $n = 0.108$ **03**
- b)** Explain in brief difference between carbide and HSS tool material. **04**
- Q.5 Writes a short note on (Any Two)** **07**
- a) Bending die
 - b) Merchant circle
 - c) Draw tool and press tool

Section – II

- Q.6 a)** Design drill jig for drilling die 10-hole draw one view of sectional assembly with parts name. **14**



OR

- b)** Design milling fixture for milling 110×12 face draws one view of sectional assembly with parts name. **14**
- Q.7 a)** Explain in brief about EOQ. **04**
- b)** Explain in brief about geometry of single point cutting tool. **03**
- Q.8 a)** With neat sketch explain in brief about any two clamping devices used in jig or fixture. **04**
- b)** Explain with neat sketch extended and slip bush used in jig. **03**
- Q.9 Write short notes on (Any Two)** **07**
- a) Types of fixture & its application
 - b) Effect of tool geometry on tool life
 - c) Difference between jig and fixture

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Hydraulics & Pneumatics (BTN02516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw suitable diagrams wherever necessary.
- 5) Assume suitable data if required & state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correction answer.

14

- 1) Seals are used to avoid _____ in a fluid system.
 - a) Internal leakage
 - b) External leakage
 - c) Both internal leakage & external leakage
 - d) None of the above

- 2) Velocity of the piston is more during _____.
 - a) Forward stroke
 - b) Backward stroke
 - c) Either forward or backward stroke
 - d) None of these

- 3) In case of spring loaded accumulator, the pressure of oil supplied by accumulator _____.

a) Remains constant	b) Varies
c) May remain constant or vary	d) None of the above

- 4) Pressure reducing valves are normally _____ type of pressure control valves.

a) Closed	b) Open
c) Both closed & open	d) None of these

- 5) If a direction control valve is represented as 4/2, the first number i.e. 4 indicates _____.
 - a) Functional openings or connections
 - b) Distinct positions of spool
 - c) Number of actuators
 - d) None of the above

- 6) Speed control circuit/s is/are _____.

a) Meter in circuit	b) Meter out circuit
c) Bleed off circuit	d) All of these

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Hydraulics & Pneumatics (BTN02516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Draw suitable diagrams wherever necessary.
 4) Assume suitable data if required & state it clearly.

Section – I

- | | | | |
|------------|-----------|----------------------------------------------------------------|-----------|
| Q.2 | a) | Enlist advantages & limitations of hydraulic systems. | 05 |
| | b) | Explain construction & working of gear pump. | 05 |
| | c) | Draw & explain a hydraulic circuit with intensifier. | 04 |
| | | | |
| Q.3 | a) | Explain different types of seals used in hydraulic system. | 05 |
| | b) | Explain construction & working of 4/2 Direction Control Valve. | 05 |
| | c) | Draw symbols of Sequence Valve & Double acting cylinder. | 04 |
| | | | |
| Q.4 | a) | Explain construction & working of pressure relief valve. | 05 |
| | b) | Explain meter in circuit with neat sketch. | 05 |
| | c) | Explain construction & working of weight loaded accumulator. | 04 |

Section – II

- | | | | |
|------------|-----------|--------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain pneumatic braking system. | 05 |
| | b) | Explain construction & working of pressure regulator. | 05 |
| | c) | Explain construction & working of any 2 types of pneumatic cylinders. | 04 |
| | | | |
| Q.6 | a) | Explain different factors to be considered for selection of an air compressor. | 05 |
| | b) | Explain construction & working of Quick Exhaust Valve. | 05 |
| | c) | Write a note on pneumatic power tools. | 04 |
| | | | |
| Q.7 | a) | Explain construction & working of air filters. | 05 |
| | b) | Explain construction & working of 3/2 seat type direction control valve. | 05 |
| | c) | Draw symbols of Flow control valve & Air motor. | 04 |

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Hydraulics & Pneumatics (BTN02516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Draw suitable diagrams wherever necessary.
 5) Assume suitable data if required & state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correction answer.

14

- 1) Centrifugal compressors deliver _____.
 a) high pressure air & discharge is low
 b) low pressure air & discharge is less
 c) low pressure air & discharge is high
 d) high pressure air & discharge is high
- 2) In 5/2 pneumatic direction control valve, _____ ports are used for release of air to atmosphere.
 a) 7
 b) 2
 c) 5
 d) 3
- 3) At inlet of air motor, air pressure is _____.
 a) Less
 b) More
 c) less or more
 d) none of these
- 4) In case of pneumatic cylinder, cushioning is _____.
 a) Needed
 b) not needed at all
 c) not possible due to air
 d) none of the given
- 5) The time-delay valve consists of _____.
 a) throttle valve (flow control valve)
 b) direction control valve
 c) air chamber/ reservoir
 d) all of these
- 6) Quick exhaust valve is used for _____.
 a) Single acting cylinder
 b) Double acting cylinder
 c) Single/Double acting cylinder
 d) None of these
- 7) For controlling speed of forward stroke of the piston of pneumatic cylinder, _____ should be preferred.
 a) meter in circuit
 b) meter out circuit
 c) time delay circuit
 d) None of these

- 8) Seals are used to avoid _____ in a fluid system.
- a) Internal leakage
 - b) External leakage
 - c) Both internal leakage & external leakage
 - d) None of the above
- 9) Velocity of the piston is more during _____.
- a) Forward stroke
 - b) Backward stroke
 - c) Either forward or backward stroke
 - d) None of these
- 10) In case of spring loaded accumulator, the pressure of oil supplied by accumulator _____.
- a) Remains constant
 - b) Varies
 - c) May remain constant or vary
 - d) None of the above
- 11) Pressure reducing valves are normally _____ type of pressure control valves.
- a) Closed
 - b) Open
 - c) Both closed & open
 - d) None of these
- 12) If a direction control valve is represented as 4/2, the first number i.e. 4 indicates _____.
- a) Functional openings or connections
 - b) Distinct positions of spool
 - c) Number of actuators
 - d) None of the above
- 13) Speed control circuit/s is/are _____.
- a) Meter in circuit
 - b) Meter out circuit
 - c) Bleed off circuit
 - d) All of these
- 14) For two linear actuators, if sequencing during only forward stroke is to be achieved, _____ sequence valve/s is/are needed.
- a) Two
 - b) Three
 - c) One
 - d) Four

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Hydraulics & Pneumatics (BTN02516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Draw suitable diagrams wherever necessary.
 4) Assume suitable data if required & state it clearly.

Section – I

- | | | | |
|------------|----|----------------------------------------------------------------|-----------|
| Q.2 | a) | Enlist advantages & limitations of hydraulic systems. | 05 |
| | b) | Explain construction & working of gear pump. | 05 |
| | c) | Draw & explain a hydraulic circuit with intensifier. | 04 |
| | | | |
| Q.3 | a) | Explain different types of seals used in hydraulic system. | 05 |
| | b) | Explain construction & working of 4/2 Direction Control Valve. | 05 |
| | c) | Draw symbols of Sequence Valve & Double acting cylinder. | 04 |
| | | | |
| Q.4 | a) | Explain construction & working of pressure relief valve. | 05 |
| | b) | Explain meter in circuit with neat sketch. | 05 |
| | c) | Explain construction & working of weight loaded accumulator. | 04 |

Section – II

- | | | | |
|------------|----|--------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain pneumatic braking system. | 05 |
| | b) | Explain construction & working of pressure regulator. | 05 |
| | c) | Explain construction & working of any 2 types of pneumatic cylinders. | 04 |
| | | | |
| Q.6 | a) | Explain different factors to be considered for selection of an air compressor. | 05 |
| | b) | Explain construction & working of Quick Exhaust Valve. | 05 |
| | c) | Write a note on pneumatic power tools. | 04 |
| | | | |
| Q.7 | a) | Explain construction & working of air filters. | 05 |
| | b) | Explain construction & working of 3/2 seat type direction control valve. | 05 |
| | c) | Draw symbols of Flow control valve & Air motor. | 04 |

- 7) In case of spring loaded accumulator, the pressure of oil supplied by accumulator _____.
a) Remains constant b) Varies
c) May remain constant or vary d) None of the above
- 8) Pressure reducing valves are normally _____ type of pressure control valves.
a) Closed b) Open
c) Both closed & open d) None of these
- 9) If a direction control valve is represented as 4/2, the first number i.e. 4 indicates _____.
a) Functional openings or connections
b) Distinct positions of spool
c) Number of actuators
d) None of the above
- 10) Speed control circuit/s is/are _____.
a) Meter in circuit b) Meter out circuit
c) Bleed off circuit d) All of these
- 11) For two linear actuators, if sequencing during only forward stroke is to be achieved, _____ sequence valve/s is/are needed.
a) Two b) Three
c) One d) Four
- 12) Centrifugal compressors deliver _____.
a) high pressure air & discharge is low
b) low pressure air & discharge is less
c) low pressure air & discharge is high
d) high pressure air & discharge is high
- 13) In 5/2 pneumatic direction control valve, _____ ports are used for release of air to atmosphere.
a) 7 b) 2
c) 5 d) 3
- 14) At inlet of air motor, air pressure is _____.
a) Less b) More
c) less or more d) none of these

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Hydraulics & Pneumatics (BTN02516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Draw suitable diagrams wherever necessary.
 4) Assume suitable data if required & state it clearly.

Section – I

- | | | | |
|------------|----|----------------------------------------------------------------|-----------|
| Q.2 | a) | Enlist advantages & limitations of hydraulic systems. | 05 |
| | b) | Explain construction & working of gear pump. | 05 |
| | c) | Draw & explain a hydraulic circuit with intensifier. | 04 |
| | | | |
| Q.3 | a) | Explain different types of seals used in hydraulic system. | 05 |
| | b) | Explain construction & working of 4/2 Direction Control Valve. | 05 |
| | c) | Draw symbols of Sequence Valve & Double acting cylinder. | 04 |
| | | | |
| Q.4 | a) | Explain construction & working of pressure relief valve. | 05 |
| | b) | Explain meter in circuit with neat sketch. | 05 |
| | c) | Explain construction & working of weight loaded accumulator. | 04 |

Section – II

- | | | | |
|------------|----|--------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain pneumatic braking system. | 05 |
| | b) | Explain construction & working of pressure regulator. | 05 |
| | c) | Explain construction & working of any 2 types of pneumatic cylinders. | 04 |
| | | | |
| Q.6 | a) | Explain different factors to be considered for selection of an air compressor. | 05 |
| | b) | Explain construction & working of Quick Exhaust Valve. | 05 |
| | c) | Write a note on pneumatic power tools. | 04 |
| | | | |
| Q.7 | a) | Explain construction & working of air filters. | 05 |
| | b) | Explain construction & working of 3/2 seat type direction control valve. | 05 |
| | c) | Draw symbols of Flow control valve & Air motor. | 04 |

- 8) Quick exhaust valve is used for _____.
a) Single acting cylinder b) Double acting cylinder
c) Single/Double acting cylinder d) None of these
- 9) For controlling speed of forward stroke of the piston of pneumatic cylinder, _____ should be preferred.
a) meter in circuit b) meter out circuit
c) time delay circuit d) None of these
- 10) Seals are used to avoid _____ in a fluid system.
a) Internal leakage
b) External leakage
c) Both internal leakage & external leakage
d) None of the above
- 11) Velocity of the piston is more during _____.
a) Forward stroke
b) Backward stroke
c) Either forward or backward stroke
d) None of these
- 12) In case of spring loaded accumulator, the pressure of oil supplied by accumulator _____.
a) Remains constant b) Varies
c) May remain constant or vary d) None of the above
- 13) Pressure reducing valves are normally _____ type of pressure control valves.
a) Closed b) Open
c) Both closed & open d) None of these
- 14) If a direction control valve is represented as 4/2, the first number i.e. 4 indicates _____.
a) Functional openings or connections
b) Distinct positions of spool
c) Number of actuators
d) None of the above

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Hydraulics & Pneumatics (BTN02516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Draw suitable diagrams wherever necessary.
 4) Assume suitable data if required & state it clearly.

Section – I

- | | | | |
|------------|-----------|----------------------------------------------------------------|-----------|
| Q.2 | a) | Enlist advantages & limitations of hydraulic systems. | 05 |
| | b) | Explain construction & working of gear pump. | 05 |
| | c) | Draw & explain a hydraulic circuit with intensifier. | 04 |
| | | | |
| Q.3 | a) | Explain different types of seals used in hydraulic system. | 05 |
| | b) | Explain construction & working of 4/2 Direction Control Valve. | 05 |
| | c) | Draw symbols of Sequence Valve & Double acting cylinder. | 04 |
| | | | |
| Q.4 | a) | Explain construction & working of pressure relief valve. | 05 |
| | b) | Explain meter in circuit with neat sketch. | 05 |
| | c) | Explain construction & working of weight loaded accumulator. | 04 |

Section – II

- | | | | |
|------------|-----------|--------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain pneumatic braking system. | 05 |
| | b) | Explain construction & working of pressure regulator. | 05 |
| | c) | Explain construction & working of any 2 types of pneumatic cylinders. | 04 |
| | | | |
| Q.6 | a) | Explain different factors to be considered for selection of an air compressor. | 05 |
| | b) | Explain construction & working of Quick Exhaust Valve. | 05 |
| | c) | Write a note on pneumatic power tools. | 04 |
| | | | |
| Q.7 | a) | Explain construction & working of air filters. | 05 |
| | b) | Explain construction & working of 3/2 seat type direction control valve. | 05 |
| | c) | Draw symbols of Flow control valve & Air motor. | 04 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) An image which contains about 256 different intensity levels between black and white is a _____ image.
 - a) Color
 - b) Binary
 - c) Grayscale
 - d) Monochrome
- 2) The two most commonly used image sensors in modern cameras are _____.
 - a) CCD and CDI
 - b) CCD and CMOS
 - c) CMOS and CDI
 - d) RGB and HSV
- 3) Zero crossing of gradient represents location of corner in an image.
 - a) True
 - b) False
- 4) Silhouette is obtained with back light source.
 - a) True
 - b) False
- 5) Which of the following operation involves plotting an image histogram?
 - a) Corner detection
 - b) Thresholding
 - c) Region growing
 - d) None of the above
- 6) The process in which small part of image is compared with large image and located in large image, is called _____.
 - a) pattern recognition
 - b) template matching
 - c) region growing
 - d) split and merge technique
- 7) If path traced by end effector of robot arm is complex and continuous, then robot programming should be done by following approach _____.
 - a) manual leadthrough
 - b) powered leadthrough
 - c) textual programming method
 - d) none of the above

- 8) In the context of camera, the term CMOS stands for _____.
a) Camera Multiple Operating System
b) Complementary Metal Oxide Semiconductor
c) Closed Circuit Operating System
d) None of the above
- 9) Charge to voltage converter for Individual pixel is employed in _____.
a) CCD camera
b) CMOS camera
c) Vidicon Camera
d) None of the above
- 10) Bin picking application of robot involves _____.
a) Identification and Servoing
b) Identification and inspection
c) Inspection and Servoing
d) None of the above
- 11) Seam tracking in continuous arc welding is an example of _____.
a) Visual servoing and navigation
b) Inspection
c) Identification
d) Inspection and identification
- 12) The application in which the purpose of machine vision system is to recognize and classify an object is called _____.
a) Inspection
b) Identification
c) Visual servoing and navigation
d) None of the above
- 13) The process of _____ is a technique which relates the location of pixels in the image array to the points in the scene.
a) Camera calibration
b) Camera orientation
c) Camera adaptation
d) Camera adjustment
- 14) The acronym AGV stands for _____.
a) Automatic Guided Vehicle
b) Automated Guided Vehicle
c) Automated Gliding Vehicle
d) Automatic Gliding Vehicle

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

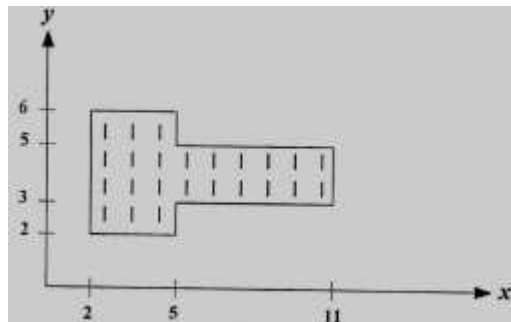
Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) Answer any two questions from each Section - I and Section - II.
 2) Figures to right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** a) With block diagram of Machine Vision system, state the objective of machine vision system. **07**
 b) Explain with neat sketch successive approximation type AD converter. **07**
- Q.3** a) Define an edge in an image and explain the process of edge detection. **07**
 b) Discuss in detail image thresholding. **07**
- Q.4** a) Determine the area, minimum aspect ratio, the diameter, perimeter, centroid and thinness measures of the image. **10**



- b) Why do we need image processing? Explain. **04**

Section – II

- Q.5** a) Explain the working of Moravec corner detector. **07**
 b) Draw neat sketch of CCD image sensor and explain its working. **07**
- Q.6** a) Discuss in detail about split and merge technique and region growing approach of segmentation. **08**
 b) Explain in brief manual leadthrough and powered leadthrough robot programming methods. **06**
- Q.7** Write a short note on (any three) **14**
 a) Inspection application of machine vision in robotics
 b) Visual servoing and navigation application of machine vision in robotics
 c) Template matching
 d) Sampling and quantization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) In the context of camera, the term CMOS stands for _____.
 a) Camera Multiple Operating System
 b) Complementary Metal Oxide Semiconductor
 c) Closed Circuit Operating System
 d) None of the above
- 2) Charge to voltage converter for Individual pixel is employed in _____.
 a) CCD camera
 b) CMOS camera
 c) Vidicon Camera
 d) None of the above
- 3) Bin picking application of robot involves _____.
 a) Identification and Servoing
 b) Identification and inspection
 c) Inspection and Servoing
 d) None of the above
- 4) Seam tracking in continuous arc welding is an example of _____.
 a) Visual servoing and navigation
 b) Inspection
 c) Identification
 d) Inspection and identification
- 5) The application in which the purpose of machine vision system is to recognize and classify an object is called _____.
 a) Inspection
 b) Identification
 c) Visual servoing and navigation
 d) None of the above
- 6) The process of _____ is a technique which relates the location of pixels in the image array to the points in the scene.
 a) Camera calibration
 b) Camera orientation
 c) Camera adaptation
 d) Camera adjustment
- 7) The acronym AGV stands for _____.
 a) Automatic Guided Vehicle
 b) Automated Guided Vehicle
 c) Automated Gliding Vehicle
 d) Automatic Gliding Vehicle

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

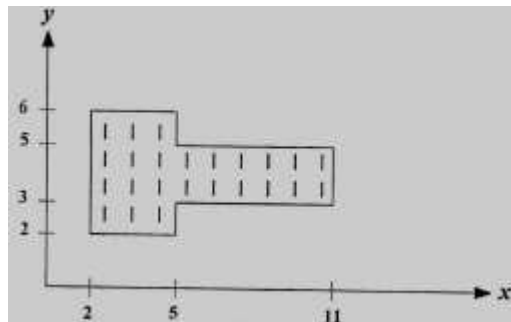
Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) Answer any two questions from each Section - I and Section - II.
 2) Figures to right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** a) With block diagram of Machine Vision system, state the objective of machine vision system. **07**
 b) Explain with neat sketch successive approximation type AD converter. **07**
- Q.3** a) Define an edge in an image and explain the process of edge detection. **07**
 b) Discuss in detail image thresholding. **07**
- Q.4** a) Determine the area, minimum aspect ratio, the diameter, perimeter, centroid and thinness measures of the image. **10**



- b) Why do we need image processing? Explain. **04**

Section – II

- Q.5** a) Explain the working of Moravec corner detector. **07**
 b) Draw neat sketch of CCD image sensor and explain its working. **07**
- Q.6** a) Discuss in detail about split and merge technique and region growing approach of segmentation. **08**
 b) Explain in brief manual leadthrough and powered leadthrough robot programming methods. **06**
- Q.7** Write a short note on (any three) **14**
 a) Inspection application of machine vision in robotics
 b) Visual servoing and navigation application of machine vision in robotics
 c) Template matching
 d) Sampling and quantization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Seam tracking in continuous arc welding is an example of _____.
 a) Visual servoing and navigation b) Inspection
 c) Identification d) Inspection and identification
- 2) The application in which the purpose of machine vision system is to recognize and classify an object is called _____.
 a) Inspection b) Identification
 c) Visual servoing and navigation d) None of the above
- 3) The process of _____ is a technique which relates the location of pixels in the image array to the points in the scene.
 a) Camera calibration b) Camera orientation
 c) Camera adaptation d) Camera adjustment
- 4) The acronym AGV stands for _____.
 a) Automatic Guided Vehicle b) Automated Guided Vehicle
 c) Automated Gliding Vehicle d) Automatic Gliding Vehicle
- 5) An image which contains about 256 different intensity levels between black and white is a _____ image.
 a) Color b) Binary
 c) Grayscale d) Monochrome
- 6) The two most commonly used image sensors in modern cameras are _____.
 a) CCD and CDI b) CCD and CMOS
 c) CMOS and CDI d) RGB and HSV
- 7) Zero crossing of gradient represents location of corner in an image.
 a) True b) False
- 8) Silhouette is obtained with back light source.
 a) True b) False

- 9) Which of the following operation involves plotting an image histogram?
a) Corner detection b) Thresholding
c) Region growing d) None of the above
- 10) The process in which small part of image is compared with large image and located in large image, is called _____.
a) pattern recognition b) template matching
c) region growing d) split and merge technique
- 11) If path traced by end effector of robot arm is complex and continuous, then robot programming should be done by following approach _____.
a) manual leadthrough b) powered leadthrough
c) textual programming method d) none of the above
- 12) In the context of camera, the term CMOS stands for _____.
a) Camera Multiple Operating System
b) Complementary Metal Oxide Semiconductor
c) Closed Circuit Operating System
d) None of the above
- 13) Charge to voltage converter for Individual pixel is employed in _____.
a) CCD camera b) CMOS camera
c) Vidicon Camera d) None of the above
- 14) Bin picking application of robot involves _____.
a) Identification and Servoing b) Identification and inspection
c) Inspection and Servoing d) None of the above

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

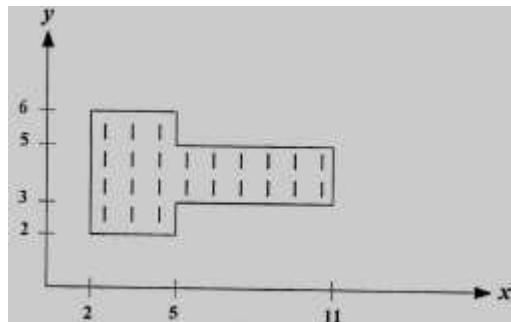
Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each Section - I and Section - II.
 2) Figures to right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** a) With block diagram of Machine Vision system, state the objective of machine vision system. **07**
 b) Explain with neat sketch successive approximation type AD converter. **07**
- Q.3** a) Define an edge in an image and explain the process of edge detection. **07**
 b) Discuss in detail image thresholding. **07**
- Q.4** a) Determine the area, minimum aspect ratio, the diameter, perimeter, centroid and thinness measures of the image. **10**



- b) Why do we need image processing? Explain. **04**

Section – II

- Q.5** a) Explain the working of Moravec corner detector. **07**
 b) Draw neat sketch of CCD image sensor and explain its working. **07**
- Q.6** a) Discuss in detail about split and merge technique and region growing approach of segmentation. **08**
 b) Explain in brief manual leadthrough and powered leadthrough robot programming methods. **06**
- Q.7** Write a short note on (any three) **14**
 a) Inspection application of machine vision in robotics
 b) Visual servoing and navigation application of machine vision in robotics
 c) Template matching
 d) Sampling and quantization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) The process in which small part of image is compared with large image and located in large image, is called _____.
 a) pattern recognition b) template matching
 c) region growing d) split and merge technique
- 2) If path traced by end effector of robot arm is complex and continuous, then robot programming should be done by following approach _____.
 a) manual leadthrough b) powered leadthrough
 c) textual programming method d) none of the above
- 3) In the context of camera, the term CMOS stands for _____.
 a) Camera Multiple Operating System
 b) Complementary Metal Oxide Semiconductor
 c) Closed Circuit Operating System
 d) None of the above
- 4) Charge to voltage converter for Individual pixel is employed in _____.
 a) CCD camera b) CMOS camera
 c) Vidicon Camera d) None of the above
- 5) Bin picking application of robot involves _____.
 a) Identification and Servoing b) Identification and inspection
 c) Inspection and Servoing d) None of the above
- 6) Seam tracking in continuous arc welding is an example of _____.
 a) Visual servoing and navigation b) Inspection
 c) Identification d) Inspection and identification
- 7) The application in which the purpose of machine vision system is to recognize and classify an object is called _____.
 a) Inspection b) Identification
 c) Visual servoing and navigation d) None of the above

- 8) The process of _____ is a technique which relates the location of pixels in the image array to the points in the scene.
- a) Camera calibration b) Camera orientation
c) Camera adaptation d) Camera adjustment
- 9) The acronym AGV stands for _____.
- a) Automatic Guided Vehicle b) Automated Guided Vehicle
c) Automated Gliding Vehicle d) Automatic Gliding Vehicle
- 10) An image which contains about 256 different intensity levels between black and white is a _____ image.
- a) Color b) Binary
c) Grayscale d) Monochrome
- 11) The two most commonly used image sensors in modern cameras are _____.
- a) CCD and CDI b) CCD and CMOS
c) CMOS and CDI d) RGB and HSV
- 12) Zero crossing of gradient represents location of corner in an image.
- a) True b) False
- 13) Silhouette is obtained with back light source.
- a) True b) False
- 14) Which of the following operation involves plotting an image histogram?
- a) Corner detection b) Thresholding
c) Region growing d) None of the above

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Machine Vision (BTN02518)

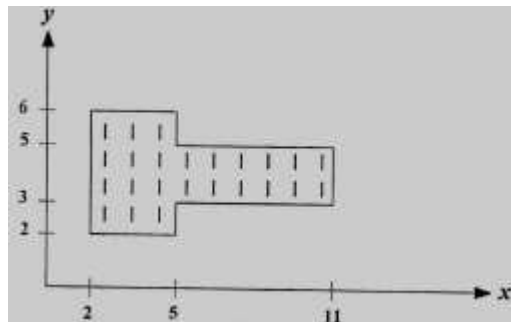
Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each Section - I and Section - II.
 2) Figures to right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2** a) With block diagram of Machine Vision system, state the objective of machine vision system. **07**
 b) Explain with neat sketch successive approximation type AD converter. **07**
- Q.3** a) Define an edge in an image and explain the process of edge detection. **07**
 b) Discuss in detail image thresholding. **07**
- Q.4** a) Determine the area, minimum aspect ratio, the diameter, perimeter, centroid and thinness measures of the image. **10**



- b) Why do we need image processing? Explain. **04**

Section – II

- Q.5** a) Explain the working of Moravec corner detector. **07**
 b) Draw neat sketch of CCD image sensor and explain its working. **07**
- Q.6** a) Discuss in detail about split and merge technique and region growing approach of segmentation. **08**
 b) Explain in brief manual leadthrough and powered leadthrough robot programming methods. **06**
- Q.7** Write a short note on (any three) **14**
 a) Inspection application of machine vision in robotics
 b) Visual servoing and navigation application of machine vision in robotics
 c) Template matching
 d) Sampling and quantization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Assume suitable data if required.
- 4) Use of scientific calculator is allowed.
- 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) What is the first step in the design process?
 - a) Make a prototype
 - b) Identify the problem or the need
 - c) Market your idea
 - d) Test and retest
- 2) Choose the correct sequence to generate prototype.
 - a) 3D CAD data - CAD solid model - STL file - RP prototype
 - b) CAD solid model - 3D CAD data - RP prototype - STL file
 - c) STL file - 3D CAD data - CAD solid model - RP prototype
 - d) 3D CAD data - STL file - CAD solid model - RP prototype
- 3) From following, the alternative name for Rapid Prototyping is _____.
 - a) Additive Manufacturing
 - b) Layer Manufacturing
 - c) Direct CAD Manufacturing
 - d) All of the above
- 4) Process of converting STL file model in to layers is called _____ in RP.
 - a) chopping
 - b) slicing
 - c) cutting
 - d) trimming
- 5) Full form of STL is _____.
 - a) Straight-lithography
 - b) Streto-lithography
 - c) Stereo-lithography
 - d) Straight-lipsography
- 6) In the _____ process, one starts with a single block of solid material larger than the final size of the desired object and material is removed until the desired shape is reached.
 - a) Subtractive process
 - b) Additive process
 - c) Formative process
 - d) All of above
- 7) Which of the following is typically the most expensive type of 3D printer?
 - a) SLA
 - b) SLM
 - c) FDM
 - d) None of the above

- 8) Which printer melts metal?
a) SLS
b) SLM
c) SLA
d) FDM
- 9) SLA printer's package material is in a _____.
a) Chain
b) Spool
c) Cartridge
d) None of the above
- 10) What material is not used in 3D printing?
a) Nylon
b) ABS
c) PLA
d) PVC
- 11) Which file type is most commonly exported from CAD software?
a) SLDRT
b) JPG
c) STL
d) X3G
- 12) Process of forming metal powder by directing molten metal through an orifice after which it is break into small particle using high pressure fluid is known as _____.
a) Atomization
b) Reduction
c) Crushing
d) Electrolysis
- 13) In Fused Deposition Modelling, the raw material is used in the form of _____.
a) Wax
b) Wire
c) Powder
d) All of above mentioned
- 14) In the process of Selective Laser Sintering, raw material used is in the form of _____.
a) Machining Wax
b) Foam Core
c) Powder
d) Rubber

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 to Q. No. 6 are compulsory. Solve any two from the remaining questions from each section.
2) Assume suitable data if required.
3) Use of scientific calculator is allowed.
4) Figures to right indicate full marks.

Section – I

- Q.2** Explain the product design concept with respect to 3D printing. **10**
- Q.3** Compare Conventional Manufacturing Vs Additive Manufacturing **09**
- Q.4** Enlist different thermo plastic materials used in 3D Printer. Explain in detail applications and characteristics of any 2 materials. **09**
- Q.5** Enlist different metal and alloy materials used in 3D Printer. Explain in detail applications and characteristics of any 03 metal and alloy materials. **09**

Section – II

- Q.6** Discuss various forms of raw material used in 3D Printing. **10**
- Q.7** Enlist the different techniques to generate the powder. And explain with neat sketch any 01 technique. **09**
- Q.8** Explain Selection process of 3d printing machine specification for following Materials: **09**
a) Polymers
b) Composites
- Q.9** Discuss the different applications of 3D printing in the various field. **09**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which printer melts metal?

a) SLS	b) SLM
c) SLA	d) FDM
- 2) SLA printer's package material is in a _____.

a) Chain	b) Spool
c) Cartridge	d) None of the above
- 3) What material is not used in 3D printing?

a) Nylon	b) ABS
c) PLA	d) PVC
- 4) Which file type is most commonly exported from CAD software?

a) SLDRT	b) JPG
c) STL	d) X3G
- 5) Process of forming metal powder by directing molten metal through an orifice after which it is break into small particle using high pressure fluid is known as _____.

a) Atomization	b) Reduction
c) Crushing	d) Electrolysis
- 6) In Fused Deposition Modelling, the raw material is used in the form of _____.

a) Wax	b) Wire
c) Powder	d) All of above mentioned
- 7) In the process of Selective Laser Sintering, raw material used is in the form of _____.

a) Machining Wax	b) Foam Core
c) Powder	d) Rubber

- 8) What is the first step in the design process?
- a) Make a prototype
 - b) Identify the problem or the need
 - c) Market your idea
 - d) Test and retest
- 9) Choose the correct sequence to generate prototype.
- a) 3D CAD data - CAD solid model - STL file - RP prototype
 - b) CAD solid model - 3D CAD data - RP prototype - STL file
 - c) STL file - 3D CAD data - CAD solid model - RP prototype
 - d) 3D CAD data - STL file - CAD solid model - RP prototype
- 10) From following, the alternative name for Rapid Prototyping is _____.
- a) Additive Manufacturing
 - b) Layer Manufacturing
 - c) Direct CAD Manufacturing
 - d) All of the above
- 11) Process of converting STL file model in to layers is called _____ in RP.
- a) chopping
 - b) slicing
 - c) cutting
 - d) trimming
- 12) Full form of STL is _____.
- a) Straight-lithography
 - b) Streto-lithography
 - c) Stereo-lithography
 - d) Straight-lipsography
- 13) In the _____ process, one starts with a single block of solid material larger than the final size of the desired object and material is removed until the desired shape is reached.
- a) Subtractive process
 - b) Additive process
 - c) Formative process
 - d) All of above
- 14) Which of the following is typically the most expensive type of 3D printer?
- a) SLA
 - b) SLM
 - c) FDM
 - d) None of the above

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 to Q. No. 6 are compulsory. Solve any two from the remaining questions from each section.
 2) Assume suitable data if required.
 3) Use of scientific calculator is allowed.
 4) Figures to right indicate full marks.

Section – I

- | | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | Explain the product design concept with respect to 3D printing. | 10 |
| Q.3 | Compare Conventional Manufacturing Vs Additive Manufacturing | 09 |
| Q.4 | Enlist different thermo plastic materials used in 3D Printer. Explain in detail applications and characteristics of any 2 materials. | 09 |
| Q.5 | Enlist different metal and alloy materials used in 3D Printer. Explain in detail applications and characteristics of any 03 metal and alloy materials. | 09 |

Section – II

- | | | |
|------------|-------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | Discuss various forms of raw material used in 3D Printing. | 10 |
| Q.7 | Enlist the different techniques to generate the powder. And explain with neat sketch any 01 technique. | 09 |
| Q.8 | Explain Selection process of 3d printing machine specification for following Materials:
a) Polymers
b) Composites | 09 |
| Q.9 | Discuss the different applications of 3D printing in the various field. | 09 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Assume suitable data if required.
 - 4) Use of scientific calculator is allowed.
 - 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which file type is most commonly exported from CAD software?
 - a) SLDRT
 - b) JPG
 - c) STL
 - d) X3G
- 2) Process of forming metal powder by directing molten metal through an orifice after which it is break into small particle using high pressure fluid is known as _____.
 - a) Atomization
 - b) Reduction
 - c) Crushing
 - d) Electrolysis
- 3) In Fused Deposition Modelling, the raw material is used in the form of _____.
 - a) Wax
 - b) Wire
 - c) Powder
 - d) All of above mentioned
- 4) In the process of Selective Laser Sintering, raw material used is in the form of _____.
 - a) Machining Wax
 - b) Foam Core
 - c) Powder
 - d) Rubber
- 5) What is the first step in the design process?
 - a) Make a prototype
 - b) Identify the problem or the need
 - c) Market your idea
 - d) Test and retest
- 6) Choose the correct sequence to generate prototype.
 - a) 3D CAD data - CAD solid model - STL file - RP prototype
 - b) CAD solid model - 3D CAD data - RP prototype - STL file
 - c) STL file - 3D CAD data - CAD solid model - RP prototype
 - d) 3D CAD data - STL file - CAD solid model - RP prototype
- 7) From following, the alternative name for Rapid Prototyping is _____.
 - a) Additive Manufacturing
 - b) Layer Manufacturing
 - c) Direct CAD Manufacturing
 - d) All of the above

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 to Q. No. 6 are compulsory. Solve any two from the remaining questions from each section.
2) Assume suitable data if required.
3) Use of scientific calculator is allowed.
4) Figures to right indicate full marks.

Section – I

- Q.2** Explain the product design concept with respect to 3D printing. **10**
- Q.3** Compare Conventional Manufacturing Vs Additive Manufacturing **09**
- Q.4** Enlist different thermo plastic materials used in 3D Printer. Explain in detail applications and characteristics of any 2 materials. **09**
- Q.5** Enlist different metal and alloy materials used in 3D Printer. Explain in detail applications and characteristics of any 03 metal and alloy materials. **09**

Section – II

- Q.6** Discuss various forms of raw material used in 3D Printing. **10**
- Q.7** Enlist the different techniques to generate the powder. And explain with neat sketch any 01 technique. **09**
- Q.8** Explain Selection process of 3d printing machine specification for following Materials: **09**
a) Polymers
b) Composites
- Q.9** Discuss the different applications of 3D printing in the various field. **09**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) In the _____ process, one starts with a single block of solid material larger than the final size of the desired object and material is removed until the desired shape is reached.
 - a) Subtractive process
 - b) Additive process
 - c) Formative process
 - d) All of above
- 2) Which of the following is typically the most expensive type of 3D printer?
 - a) SLA
 - b) SLM
 - c) FDM
 - d) None of the above
- 3) Which printer melts metal?
 - a) SLS
 - b) SLM
 - c) SLA
 - d) FDM
- 4) SLA printer's package material is in a _____.
 - a) Chain
 - b) Spool
 - c) Cartridge
 - d) None of the above
- 5) What material is not used in 3D printing?
 - a) Nylon
 - b) ABS
 - c) PLA
 - d) PVC
- 6) Which file type is most commonly exported from CAD software?
 - a) SLDRT
 - b) JPG
 - c) STL
 - d) X3G
- 7) Process of forming metal powder by directing molten metal through an orifice after which it is break into small particle using high pressure fluid is known as _____.
 - a) Atomization
 - b) Reduction
 - c) Crushing
 - d) Electrolysis

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
3D Printing Material (BTN02519)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 to Q. No. 6 are compulsory. Solve any two from the remaining questions from each section.
2) Assume suitable data if required.
3) Use of scientific calculator is allowed.
4) Figures to right indicate full marks.

Section – I

- Q.2** Explain the product design concept with respect to 3D printing. **10**
- Q.3** Compare Conventional Manufacturing Vs Additive Manufacturing **09**
- Q.4** Enlist different thermo plastic materials used in 3D Printer. Explain in detail applications and characteristics of any 2 materials. **09**
- Q.5** Enlist different metal and alloy materials used in 3D Printer. Explain in detail applications and characteristics of any 03 metal and alloy materials. **09**

Section – II

- Q.6** Discuss various forms of raw material used in 3D Printing. **10**
- Q.7** Enlist the different techniques to generate the powder. And explain with neat sketch any 01 technique. **09**
- Q.8** Explain Selection process of 3d printing machine specification for following Materials: **09**
a) Polymers
b) Composites
- Q.9** Discuss the different applications of 3D printing in the various field. **09**

Seat
No.

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) "The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of _____.
 - a) Energy conservation
 - b) Energy management
 - c) Energy policy
 - d) Energy Audit
- 2) Primary or final energy consumption means _____.
 - a) Total energy demand of the country
 - b) Energy demand for commercial purpose
 - c) Energy demand for industrial purpose
 - d) Energy demand of residential and municipal
- 3) Sunlight, air, soil, and water are examples of _____.
 - a) Renewable resources
 - b) Non-renewable resources
 - c) Conventional resources
 - d) Non-natural resources
- 4) Which of the following is not part of energy monitoring?
 - a) data recording
 - b) data analysis
 - c) data reporting
 - d) energy efficiency equipment financing
- 5) Which of the following is a disadvantage of most of the renewable-energy Sources?
 - a) Unreliable supply
 - b) Highly polluting
 - c) High waste disposal cost
 - d) High running cost
- 6) Which is not a Primary energy resources?
 - a) Petroleum products
 - b) Electrical Energy
 - c) Geothermal Energy
 - d) Biomass like wood
- 7) Name the Act, which is proposed to bring the qualitative transformation of the electricity sector?
 - a) Regulatory Commission Act 1998
 - b) Indian Electricity Act 1910
 - c) Supply Act 1948
 - d) Electricity Act 2003

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve:**
- a) Why renewable energy is important? Discuss the relevance of renewable energy for national energy security policy. **07**
 - b) Describe Current energy scenario - World. **07**
- Q.3 Solve:**
- a) Importance Energy Audit in Indian Industry. **07**
 - b) Why Pre-audit and Post-audit is important during Energy audit? **07**
- Q.4 Answer the following questions. (Any Four) **14****
- a) Write Standard Energy Audit Report Format.
 - b) Discuss Responsibilities of Energy Auditor.
 - c) Describe Current energy scenario - India.
 - d) Explain Preliminary Energy Audit.
 - e) Write a short note on Energy action Planning.

Section – II

- Q.5 Solve:**
- a) Explain in detail direct method and indirect method for finding out boiler efficiency. **07**
 - b) Explain Energy Conservation opportunities in HVAC and Furnace. **07**
- Q.6 Solve:**
- a) Explain different Financial Analysis Techniques. **07**
 - b) What are the direct and indirect benefits of waste heat recovery? **07**
- Q.7 Write short notes. (Any Four). **14****
- a) Explain Energy Performance Assessment of pump.
 - b) List the energy saving opportunities in pumping system
 - c) Time Value of Money
 - d) Simple Payback Period
 - e) Explain Energy Conservation opportunities in Steam System.

- 9) Primary or final energy consumption means _____.
a) Total energy demand of the country
b) Energy demand for commercial purpose
c) Energy demand for industrial purpose
d) Energy demand of residential and municipal
- 10) Sunlight, air, soil, and water are examples of _____.
a) Renewable resources b) Non-renewable resources
c) Conventional resources d) Non-natural resources
- 11) Which of the following is not part of energy monitoring?
a) data recording
b) data analysis
c) data reporting
d) energy efficiency equipment financing
- 12) Which of the following is a disadvantage of most of the renewable-energy Sources?
a) Unreliable supply b) Highly polluting
c) High waste disposal cost d) High running cost
- 13) Which is not a Primary energy resources?
a) Petroleum products b) Electrical Energy
c) Geothermal Energy d) Biomass like wood
- 14) Name the Act, which is proposed to bring the qualitative transformation of the electricity sector?
a) Regulatory Commission Act 1998
b) Indian Electricity Act 1910
c) Supply Act 1948
d) Electricity Act 2003

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve:

- a) Why renewable energy is important? Discuss the relevance of renewable energy for national energy security policy. **07**
b) Describe Current energy scenario - World. **07**

Q.3 Solve:

- a) Importance Energy Audit in Indian Industry. **07**
b) Why Pre-audit and Post-audit is important during Energy audit? **07**

Q.4 Answer the following questions. (Any Four) **14**

- a) Write Standard Energy Audit Report Format.
b) Discuss Responsibilities of Energy Auditor.
c) Describe Current energy scenario - India.
d) Explain Preliminary Energy Audit.
e) Write a short note on Energy action Planning.

Section – II

Q.5 Solve:

- a) Explain in detail direct method and indirect method for finding out boiler efficiency. **07**
b) Explain Energy Conservation opportunities in HVAC and Furnace. **07**

Q.6 Solve:

- a) Explain different Financial Analysis Techniques. **07**
b) What are the direct and indirect benefits of waste heat recovery? **07**

Q.7 Write short notes. (Any Four). **14**

- a) Explain Energy Performance Assessment of pump.
b) List the energy saving opportunities in pumping system
c) Time Value of Money
d) Simple Payback Period
e) Explain Energy Conservation opportunities in Steam System.

Seat
No.

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Which of the following is highest contributor to the air pollution?
 - a) Carbon Monoxide
 - b) Hydro Carbons
 - c) Sulphur Oxides
 - d) Particulates
- 2) Kilowatt-hour (kWh) is a unit of _____.
 - a) Current
 - b) Power
 - c) Energy
 - d) Resistance
- 3) Recovery of waste heat from hot fluid to fluid is called _____.
 - a) thermo compressor
 - b) waste heat recovery boiler
 - c) heat Pump
 - d) Economizer
- 4) Energy consumption per unit of GDP is called as _____.
 - a) Energy Ratio
 - b) Energy intensity
 - c) Per capita consumption
 - d) none
- 5) "The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of _____.
 - a) Energy conservation
 - b) Energy management
 - c) Energy policy
 - d) Energy Audit
- 6) Primary or final energy consumption means _____.
 - a) Total energy demand of the country
 - b) Energy demand for commercial purpose
 - c) Energy demand for industrial purpose
 - d) Energy demand of residential and municipal
- 7) Sunlight, air, soil, and water are examples of _____.
 - a) Renewable resources
 - b) Non-renewable resources
 - c) Conventional resources
 - d) Non-natural resources
- 8) Which of the following is not part of energy monitoring?
 - a) data recording
 - b) data analysis
 - c) data reporting
 - d) energy efficiency equipment financing

- 9) Which of the following is a disadvantage of most of the renewable-energy Sources?
- a) Unreliable supply b) Highly polluting
c) High waste disposal cost d) High running cost
- 10) Which is not a Primary energy resources?
- a) Petroleum products b) Electrical Energy
c) Geothermal Energy d) Biomass like wood
- 11) Name the Act, which is proposed to bring the qualitative transformation of the electricity sector?
- a) Regulatory Commission Act 1998
b) Indian Electricity Act 1910
c) Supply Act 1948
d) Electricity Act 2003
- 12) The world's first 100% solar powered airport located at _____.
- a) Cochin, Kerala b) Bengaluru, Karnataka
c) Chennai, Tami Nadu d) Mumbai, Maharashtra
- 13) Which country has the largest share of the global coal reserves?
- a) Russia b) China
c) USA d) India
- 14) Select the important factor for the site selection of a thermal power plant.
- a) Distance from the populated area
b) Availability of fuel
c) Availability of water
d) Cost of plant

Seat No.	
----------	--

Set **R**

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve:

- a) Why renewable energy is important? Discuss the relevance of renewable energy for national energy security policy. **07**
b) Describe Current energy scenario - World. **07**

Q.3 Solve:

- a) Importance Energy Audit in Indian Industry. **07**
b) Why Pre-audit and Post-audit is important during Energy audit? **07**

Q.4 Answer the following questions. (Any Four) **14**

- a) Write Standard Energy Audit Report Format.
b) Discuss Responsibilities of Energy Auditor.
c) Describe Current energy scenario - India.
d) Explain Preliminary Energy Audit.
e) Write a short note on Energy action Planning.

Section – II

Q.5 Solve:

- a) Explain in detail direct method and indirect method for finding out boiler efficiency. **07**
b) Explain Energy Conservation opportunities in HVAC and Furnace. **07**

Q.6 Solve:

- a) Explain different Financial Analysis Techniques. **07**
b) What are the direct and indirect benefits of waste heat recovery? **07**

Q.7 Write short notes. (Any Four). **14**

- a) Explain Energy Performance Assessment of pump.
b) List the energy saving opportunities in pumping system
c) Time Value of Money
d) Simple Payback Period
e) Explain Energy Conservation opportunities in Steam System.

Seat
No.

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Which is not a Primary energy resources?
 - a) Petroleum products
 - b) Electrical Energy
 - c) Geothermal Energy
 - d) Biomass like wood
- 2) Name the Act, which is proposed to bring the qualitative transformation of the electricity sector?
 - a) Regulatory Commission Act 1998
 - b) Indian Electricity Act 1910
 - c) Supply Act 1948
 - d) Electricity Act 2003
- 3) The world's first 100% solar powered airport located at _____.
 - a) Cochin, Kerala
 - b) Bengaluru, Karnataka
 - c) Chennai, Tami Nadu
 - d) Mumbai, Maharashtra
- 4) Which country has the largest share of the global coal reserves?
 - a) Russia
 - b) China
 - c) USA
 - d) India
- 5) Select the important factor for the site selection of a thermal power plant.
 - a) Distance from the populated area
 - b) Availability of fuel
 - c) Availability of water
 - d) Cost of plant
- 6) Which of the following is highest contributor to the air pollution?
 - a) Carbon Monoxide
 - b) Hydro Carbons
 - c) Sulphur Oxides
 - d) Particulates
- 7) Kilowatt-hour (kWh) is a unit of _____.
 - a) Current
 - b) Power
 - c) Energy
 - d) Resistance

- 8) Recovery of waste heat from hot fluid to fluid is called _____.
a) thermo compressor b) waste heat recovery boiler
c) heat Pump d) Economizer
- 9) Energy consumption per unit of GDP is called as _____.
a) Energy Ratio b) Energy intensity
c) Per capita consumption d) none
- 10) "The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of _____.
a) Energy conservation b) Energy management
c) Energy policy d) Energy Audit
- 11) Primary or final energy consumption means _____.
a) Total energy demand of the country
b) Energy demand for commercial purpose
c) Energy demand for industrial purpose
d) Energy demand of residential and municipal
- 12) Sunlight, air, soil, and water are examples of _____.
a) Renewable resources b) Non-renewable resources
c) Conventional resources d) Non-natural resources
- 13) Which of the following is not part of energy monitoring?
a) data recording
b) data analysis
c) data reporting
d) energy efficiency equipment financing
- 14) Which of the following is a disadvantage of most of the renewable-energy Sources?
a) Unreliable supply b) Highly polluting
c) High waste disposal cost d) High running cost

Seat No.	
----------	--

Set **S**

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Conservation, Management and Audit (BTN02520)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve:**
- a) Why renewable energy is important? Discuss the relevance of renewable energy for national energy security policy. **07**
- b) Describe Current energy scenario - World. **07**
- Q.3 Solve:**
- a) Importance Energy Audit in Indian Industry. **07**
- b) Why Pre-audit and Post-audit is important during Energy audit? **07**
- Q.4 Answer the following questions. (Any Four) **14****
- a) Write Standard Energy Audit Report Format.
- b) Discuss Responsibilities of Energy Auditor.
- c) Describe Current energy scenario - India.
- d) Explain Preliminary Energy Audit.
- e) Write a short note on Energy action Planning.

Section – II

- Q.5 Solve:**
- a) Explain in detail direct method and indirect method for finding out boiler efficiency. **07**
- b) Explain Energy Conservation opportunities in HVAC and Furnace. **07**
- Q.6 Solve:**
- a) Explain different Financial Analysis Techniques. **07**
- b) What are the direct and indirect benefits of waste heat recovery? **07**
- Q.7 Write short notes. (Any Four). **14****
- a) Explain Energy Performance Assessment of pump.
- b) List the energy saving opportunities in pumping system
- c) Time Value of Money
- d) Simple Payback Period
- e) Explain Energy Conservation opportunities in Steam System.

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Draw neat sketches wherever necessary.
4) Attempt any two questions from Section I and Section II

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) What's the difference between a plug-in hybrid and a battery electric vehicle?
 - a) There is no difference
 - b) A plug-in hybrid only accepts AC power, while a battery electric vehicle accepts AC and DC power
 - c) A plug-in hybrid can be powered by either the battery or the gasoline engine. A pure electric vehicle is powered only by the battery.
 - d) Both models utilize a battery and gasoline engine but in different ways
- 2) The electric motor in hybrid car can also act as _____.
 - a) Generator
 - b) Fuel Pump
 - c) Cooling Fan
 - d) Compressor
- 3) Which voltage is likely to be available from the battery of an electric vehicle also known as Mild hybrid?
 - a) 12V
 - b) 24V
 - c) 300V
 - d) 100V
- 4) Which of the following vehicles produces zero emissions?
 - a) Traditional
 - b) Hybrid
 - c) Electric Vehicle
 - d) Both Traditional and Hybrid
- 5) How to increase the range on electric vehicle?
 - a) By reducing battery
 - b) By installing a turbocharger
 - c) By installing another DC motor
 - d) By increasing the battery capacity
- 6) HEV stands for _____.
 - a) Hybrid Electronic Vehicle
 - b) Hybrid Electrical vehicle
 - c) Hybrid Environmental Vehicle
 - d) None of these

- 7) Hybrid vehicles convert energy that is normally lost through braking into electrical energy. What is the term that is used for the recycling of energy?
- a) Perpetual motion b) Regenerative braking
c) Kinetic conversation d) Hybrid alchemy
- 8) Which of the following is not an advantage of hybrid vehicles?
- a) Initial cost is low b) Environmentally friendly
c) Better mileage d) Higher energy conservation
- 9) Which of the following is not the type of hybrid vehicle?
- a) Plug in Hybrid b) Parallel Hybrid
c) Natural Gas for Vehicle d) Series Hybrid
- 10) What purpose does a generator serve in a hybrid vehicle?
- a) It converts nuclear energy into electrical energy.
b) It converts mechanical energy into electrical energy.
c) It converts chemical energy into electrical energy.
d) It converts electrical energy into mechanical energy.
- 11) In _____ vehicle energy is stored in an auxiliary battery and then it is used to quickly start a Vehicle.
- a) Full Hybrid b) Micro Hybrid
c) Series Hybrid d) Mild Hybrid
- 12) In which vehicle system lowest size of a battery is used?
- a) Micro Hybrid b) Series Hybrid
c) Mild Hybrid d) Parallel Hybrid
- 13) The rotating part of DC Motor is called as _____.
- a) Stator b) Rotor
c) Poles d) Pole shoe
- 14) ACC requires the driver to set the desired _____.
- a) Noise b) Speed
c) Vision d) All of these

Seat No.	
----------	--

Set **P**

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2 Attempt the following questions. 14**
- a) Write a note on history of electric vehicles. Stating related scenarios for getting pick of production and then to convert the market trends. **05**
- b) Write a note on swapped battery and range extender batteries techniques. **05**
- c) Write a note on gravitational and volumetric energy density. Explain battery cost reduction strategy. **04**
- Q.3 Attempt the Following questions. 14**
- a) Explain the tractive effort and transmission requirements in electric vehicles. **05**
- b) Write a note on DC electric motor characteristics. **05**
- c) What is tractive effort and explain the tractive effort in electric vehicles? **04**
- Q.4 Attempt the Following questions. 14**
- a) Explain the hybrid electric drive train architecture. **05**
- b) Explain the series hybrid electric drive train with neat sketch. **05**
- c) Write a note on mass analysis and packaging. **04**

Section – II

- Q.5 Attempt the Following questions. 14**
- a) Write the construction and working of BLDC Motor. **05**
- b) Write a note on speed and torque control of DC Motors. **05**
- c) Write a note on different advantages of synchronous over asynchronous motors. **04**
- Q.6 Attempt the Following questions. 14**
- a) Write a note on drive cycle stating different steps involved in it. **05**
- b) Write a note on regeneration efficiency. **05**
- c) Write a note on AC induction motor. **04**
- Q.7 Attempt the Following question. 14**
- a) Explain construction of electric compact sedan. **05**
- b) Relate modified Indian drive cycle with European drive cycle. **05**
- c) Write a note on traction energy for drive cycle. **04**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Draw neat sketches wherever necessary.
4) Attempt any two questions from Section I and Section II

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) Which of the following is not an advantage of hybrid vehicles?

a) Initial cost is low	b) Environmentally friendly
c) Better mileage	d) Higher energy conservation
- 2) Which of the following is not the type of hybrid vehicle?

a) Plug in Hybrid	b) Parallel Hybrid
c) Natural Gas for Vehicle	d) Series Hybrid
- 3) What purpose does a generator serve in a hybrid vehicle?

a) It converts nuclear energy into electrical energy.
b) It converts mechanical energy into electrical energy.
c) It converts chemical energy into electrical energy.
d) It converts electrical energy into mechanical energy.
- 4) In _____ vehicle energy is stored in an auxiliary battery and then it is used to quickly start a Vehicle.

a) Full Hybrid	b) Micro Hybrid
c) Series Hybrid	d) Mild Hybrid
- 5) In which vehicle system lowest size of a battery is used?

a) Micro Hybrid	b) Series Hybrid
c) Mild Hybrid	d) Parallel Hybrid
- 6) The rotating part of DC Motor is called as _____.

a) Stator	b) Rotor
c) Poles	d) Pole shoe
- 7) ACC requires the driver to set the desired _____.

a) Noise	b) Speed
c) Vision	d) All of these

- 8) What's the difference between a plug-in hybrid and a battery electric vehicle?
- a) There is no difference
 - b) A plug-in hybrid only accepts AC power, while a battery electric vehicle accepts AC and DC power
 - c) A plug-in hybrid can be powered by either the battery or the gasoline engine. A pure electric vehicle is powered only by the battery.
 - d) Both models utilize a battery and gasoline engine but in different ways
- 9) The electric motor in hybrid car can also act as _____.
- a) Generator
 - b) Fuel Pump
 - c) Cooling Fan
 - d) Compressor
- 10) Which voltage is likely to be available from the battery of an electric vehicle also known as Mild hybrid?
- a) 12V
 - b) 24V
 - c) 300V
 - d) 100V
- 11) Which of the following vehicles produces zero emissions?
- a) Traditional
 - b) Hybrid
 - c) Electric Vehicle
 - d) Both Traditional and Hybrid
- 12) How to increase the range on electric vehicle?
- a) By reducing battery
 - b) By installing a turbocharger
 - c) By installing another DC motor
 - d) By increasing the battery capacity
- 13) HEV stands for _____.
- a) Hybrid Electronic Vehicle
 - b) Hybrid Electrical vehicle
 - c) Hybrid Environmental Vehicle
 - d) None of these
- 14) Hybrid vehicles convert energy that is normally lost through braking into electrical energy. What is the term that is used for the recycling of energy?
- a) Perpetual motion
 - b) Regenerative braking
 - c) Kinetic conversation
 - d) Hybrid alchemy

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2 Attempt the following questions. 14**
- a) Write a note on history of electric vehicles. Stating related scenarios for getting pick of production and then to convert the market trends. **05**
 - b) Write a note on swapped battery and range extender batteries techniques. **05**
 - c) Write a note on gravitational and volumetric energy density. Explain battery cost reduction strategy. **04**
- Q.3 Attempt the Following questions. 14**
- a) Explain the tractive effort and transmission requirements in electric vehicles. **05**
 - b) Write a note on DC electric motor characteristics. **05**
 - c) What is tractive effort and explain the tractive effort in electric vehicles? **04**
- Q.4 Attempt the Following questions. 14**
- a) Explain the hybrid electric drive train architecture. **05**
 - b) Explain the series hybrid electric drive train with neat sketch. **05**
 - c) Write a note on mass analysis and packaging. **04**

Section – II

- Q.5 Attempt the Following questions. 14**
- a) Write the construction and working of BLDC Motor. **05**
 - b) Write a note on speed and torque control of DC Motors. **05**
 - c) Write a note on different advantages of synchronous over asynchronous motors. **04**
- Q.6 Attempt the Following questions. 14**
- a) Write a note on drive cycle stating different steps involved in it. **05**
 - b) Write a note on regeneration efficiency. **05**
 - c) Write a note on AC induction motor. **04**
- Q.7 Attempt the Following question. 14**
- a) Explain construction of electric compact sedan. **05**
 - b) Relate modified Indian drive cycle with European drive cycle. **05**
 - c) Write a note on traction energy for drive cycle. **04**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw neat sketches wherever necessary.
- 4) Attempt any two questions from Section I and Section II

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) In _____ vehicle energy is stored in an auxiliary battery and then it is used to quickly start a Vehicle.

a) Full Hybrid	b) Micro Hybrid
c) Series Hybrid	d) Mild Hybrid
- 2) In which vehicle system lowest size of a battery is used?

a) Micro Hybrid	b) Series Hybrid
c) Mild Hybrid	d) Parallel Hybrid
- 3) The rotating part of DC Motor is called as _____.

a) Stator	b) Rotor
c) Poles	d) Pole shoe
- 4) ACC requires the driver to set the desired _____.

a) Noise	b) Speed
c) Vision	d) All of these
- 5) What's the difference between a plug-in hybrid and a battery electric vehicle?

a) There is no difference
b) A plug-in hybrid only accepts AC power, while a battery electric vehicle accepts AC and DC power
c) A plug-in hybrid can be powered by either the battery or the gasoline engine. A pure electric vehicle is powered only by the battery.
d) Both models utilize a battery and gasoline engine but in different ways
- 6) The electric motor in hybrid car can also act as _____.

a) Generator	b) Fuel Pump
c) Cooling Fan	d) Compressor
- 7) Which voltage is likely to be available from the battery of an electric vehicle also known as Mild hybrid?

a) 12V	b) 24V
c) 300V	d) 100V

Seat No.	
----------	--

Set **R**

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2 Attempt the following questions. 14**
- a) Write a note on history of electric vehicles. Stating related scenarios for getting pick of production and then to convert the market trends. **05**
 - b) Write a note on swapped battery and range extender batteries techniques. **05**
 - c) Write a note on gravitational and volumetric energy density. Explain battery cost reduction strategy. **04**
- Q.3 Attempt the Following questions. 14**
- a) Explain the tractive effort and transmission requirements in electric vehicles. **05**
 - b) Write a note on DC electric motor characteristics. **05**
 - c) What is tractive effort and explain the tractive effort in electric vehicles? **04**
- Q.4 Attempt the Following questions. 14**
- a) Explain the hybrid electric drive train architecture. **05**
 - b) Explain the series hybrid electric drive train with neat sketch. **05**
 - c) Write a note on mass analysis and packaging. **04**

Section – II

- Q.5 Attempt the Following questions. 14**
- a) Write the construction and working of BLDC Motor. **05**
 - b) Write a note on speed and torque control of DC Motors. **05**
 - c) Write a note on different advantages of synchronous over asynchronous motors. **04**
- Q.6 Attempt the Following questions. 14**
- a) Write a note on drive cycle stating different steps involved in it. **05**
 - b) Write a note on regeneration efficiency. **05**
 - c) Write a note on AC induction motor. **04**
- Q.7 Attempt the Following question. 14**
- a) Explain construction of electric compact sedan. **05**
 - b) Relate modified Indian drive cycle with European drive cycle. **05**
 - c) Write a note on traction energy for drive cycle. **04**

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw neat sketches wherever necessary.
- 4) Attempt any two questions from Section I and Section II

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) HEV stands for _____.
 - a) Hybrid Electronic Vehicle
 - b) Hybrid Electrical vehicle
 - c) Hybrid Environmental Vehicle
 - d) None of these
- 2) Hybrid vehicles convert energy that is normally lost through braking into electrical energy. What is the term that is used for the recycling of energy?
 - a) Perpetual motion
 - b) Regenerative braking
 - c) Kinetic conversation
 - d) Hybrid alchemy
- 3) Which of the following is not an advantage of hybrid vehicles?
 - a) Initial cost is low
 - b) Environmentally friendly
 - c) Better mileage
 - d) Higher energy conservation
- 4) Which of the following is not the type of hybrid vehicle?
 - a) Plug in Hybrid
 - b) Parallel Hybrid
 - c) Natural Gas for Vehicle
 - d) Series Hybrid
- 5) What purpose does a generator serve in a hybrid vehicle?
 - a) It converts nuclear energy into electrical energy.
 - b) It converts mechanical energy into electrical energy.
 - c) It converts chemical energy into electrical energy.
 - d) It converts electrical energy into mechanical energy.
- 6) In _____ vehicle energy is stored in an auxiliary battery and then it is used to quickly start a Vehicle.
 - a) Full Hybrid
 - b) Micro Hybrid
 - c) Series Hybrid
 - d) Mild Hybrid
- 7) In which vehicle system lowest size of a battery is used?
 - a) Micro Hybrid
 - b) Series Hybrid
 - c) Mild Hybrid
 - d) Parallel Hybrid

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Introduction to Electric and Hybrid Electric Vehicles (BTN02521)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2 Attempt the following questions. 14**
- a) Write a note on history of electric vehicles. Stating related scenarios for getting pick of production and then to convert the market trends. **05**
 - b) Write a note on swapped battery and range extender batteries techniques. **05**
 - c) Write a note on gravitational and volumetric energy density. Explain battery cost reduction strategy. **04**
- Q.3 Attempt the Following questions. 14**
- a) Explain the tractive effort and transmission requirements in electric vehicles. **05**
 - b) Write a note on DC electric motor characteristics. **05**
 - c) What is tractive effort and explain the tractive effort in electric vehicles? **04**
- Q.4 Attempt the Following questions. 14**
- a) Explain the hybrid electric drive train architecture. **05**
 - b) Explain the series hybrid electric drive train with neat sketch. **05**
 - c) Write a note on mass analysis and packaging. **04**

Section – II

- Q.5 Attempt the Following questions. 14**
- a) Write the construction and working of BLDC Motor. **05**
 - b) Write a note on speed and torque control of DC Motors. **05**
 - c) Write a note on different advantages of synchronous over asynchronous motors. **04**
- Q.6 Attempt the Following questions. 14**
- a) Write a note on drive cycle stating different steps involved in it. **05**
 - b) Write a note on regeneration efficiency. **05**
 - c) Write a note on AC induction motor. **04**
- Q.7 Attempt the Following question. 14**
- a) Explain construction of electric compact sedan. **05**
 - b) Relate modified Indian drive cycle with European drive cycle. **05**
 - c) Write a note on traction energy for drive cycle. **04**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 3) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.

a) The behavior of firms	b) The activities of individual units
c) Economic aggregates	d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?

a) owning the only licensed taxicab in town	b) the United States Postal Service
c) ownership of the only ferry across Puget Sound for twenty miles	d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA

- 8) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9) Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10) _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.

a) Increase	b) Decrease
c) No change	d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 6) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency

- 8)** Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9)** Macroeconomic theory deals with _____.
- | | |
|--------------------------|---------------------------------------------|
| a) The behavior of firms | b) The activities of individual units |
| c) Economic aggregates | d) The behavior of the electronics industry |
- 10)** Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 a) Socialism
 b) Capitalism
 c) A place where goods are traded
 d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.
 a) Cultural Values
 b) Society
 c) Technology
 d) Economy
- 3) Who gives a welfare definition of economics?
 a) Adam Smith
 b) Alfred Marshall
 c) Lionel Robbins
 d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.
 a) General equilibrium
 b) Partial equilibrium
 c) Zero equilibrium
 d) Pareto efficiency
- 5) Who is known as father of economics?
 a) Adam Smith
 b) Prof. A. Samuelson
 c) Alfred Marshall
 d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 a) The behavior of firms
 b) The activities of individual units
 c) Economic aggregates
 d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 a) Perfect competition
 b) Oligopoly
 c) Monopolistic competition
 d) Monopoly

- 8)** Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9)** Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10)** Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Economics (BTN02508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN02509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?

a) 35 years	b) 25 years
c) 20 years	d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.

a) Ethical value	b) Moral value
c) Social value	d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 4) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 5) Trade mark _____.

a) is represented graphically
b) is capable of distinguishing the goods or services of one person from those of others
c) may include shapes of goods or combination of colors
d) All of the above
- 6) In India, the literary work is protected until _____.

a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 7) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights

- 8)** In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9)** The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN02509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN02509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN02509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
---------------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
**Intellectual Property Rights for Technology Development and
Management (BTN02509)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) The first Patent Law was enacted in India in the year _____.
a) 1856 b) 1880
c) 1905 d) 1850
- 2) All of the following are examples of intellectual property protections except _____.
a) Copyright b) Patents
c) Contracts d) Trademarks
- 3) What is the term of Patent?
a) 35 years b) 25 years
c) 20 years d) 15 years
- 4) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
a) Ethical value b) Moral value
c) Social value d) Commercial value
- 5) Who fills the invention disclosure form (IDF)?
a) Inventor b) Patent Attorney
c) Assignee d) Patent Searcher
- 6) The following can be patented _____.
a) Machine b) Process
c) Composition of matter d) All of these
- 7) Trade mark _____.
a) is represented graphically
b) is capable of distinguishing the goods or services of one person from those of others
c) may include shapes of goods or combination of colors
d) All of the above

- 8)** In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9)** Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10)** In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN02509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN02509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 2) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights
- 6) In which article is intellectual property rights outlined?

a) Article 15	b) Article 27
c) Article 13	d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.

a) 1856	b) 1880
c) 1905	d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN02509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 2) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 3) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 4) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 5) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 6) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 7) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 8) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 9) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024

MECHANICAL ENGINEERING

Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 2) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 3) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 4) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 5) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 6) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 7) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 8) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 9) What is the base of social structure?

a) polity	b) government
c) economy	d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024

MECHANICAL ENGINEERING

Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024

MECHANICAL ENGINEERING

Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Introduction to Sociology (BTN02510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 2) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 3) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 4) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 5) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 6) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 7) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 8) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 9) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

Set S**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024****MECHANICAL ENGINEERING****Introduction to Sociology (BTN02510)**

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 3) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 6) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 7) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above

- 8)** Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9)** Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10)** Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 2) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above
- 3) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 4) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 5) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 6) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 7) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above

- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task

- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above

- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 7) Aches, shallow breathing and sweating, frequent colds are _____.
a) Physical symptoms of stress
b) Behavioral symptoms of stress
c) Emotional symptoms of stress
d) Cognitive symptoms of stress
- 8) Anxiety can cause the following moods _____.
a) Irritable
b) Nervous
c) Anxious
d) All of the above
- 9) Which of the following are the physical symptoms of anxiety?
a) Racing heart
b) Sweaty palms
c) Flushed cheeks
d) All of the above
- 10) Which of the following is true about 'deep breathing relaxation technique'?
a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.**10**

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Stress and Coping (BTN02511)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Virtues are _____.
 a) moral
 b) ethics
 c) values
 d) positive and preferred values
- 2) One of the basic desires of every human being is to be always _____.
 a) Happy
 b) Sad
 c) Laugh
 d) Earn Money
- 3) Value and skills should go hand in hand _____.
 a) True
 b) False
 c) Cannot tell
 d) Wrong question
- 4) _____ are the basic Human aspirations.
 a) Money
 b) Relationship without money
 c) Physical facility
 d) Continuous happiness
- 5) Many complex social problems exist in the _____.
 a) Industry/ Business
 b) Society
 c) Home
 d) None of the above
- 6) What is Integrity?
 a) Unity of thought
 b) Word and deed
 c) Open mindedness
 d) All of these
- 7) Human values are essential for _____.
 a) living in harmony with self, each other and nature
 b) making life easier and happy
 c) living with family and friends
 d) making money to fulfill desires
- 8) Courage is the tendency to accept and face _____.
 a) Self-confidence
 b) Risks and difficult tasks in rational ways
 c) Physical courage
 d) Social courage

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 **Write short notes on any four.** **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 2) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 3) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 4) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 5) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 6) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 7) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 8) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these

- 9) Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10) Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 2) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 3) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 4) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 5) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 6) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 7) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above

- 8) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9) Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10) One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Professional Ethics & Human Value (BTN02512)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

- 9) According to Lewis equation _____.
a) pinion is always weaker than gear
b) pinion is weaker than gear if made of same material
c) gear is weaker than pinion if made of same material
d) none of the above
- 10) The friction material of the brake should have _____.
a) high coefficient of friction b) low coefficient of friction
c) high surface hardness d) high endurance limit strength
- 11) In thrust bearings, the load acts _____.
a) along the axis of rotation
b) perpendicular to the axis of rotation
c) parallel to the axis of rotation
d) a and c
- 12) Worm gears are widely used when _____.
a) velocity ratio is high
b) space is limited
c) axes of shafts are non-intersecting
d) all the three
- 13) The main advantage of worm gear drive is _____.
a) ease of manufacturing b) high velocity ratio
c) low power loss d) low cost
- 14) Taper roller bearing is used to take _____.
a) only radial load b) only axial load
c) only torque d) both axial and radial loads

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

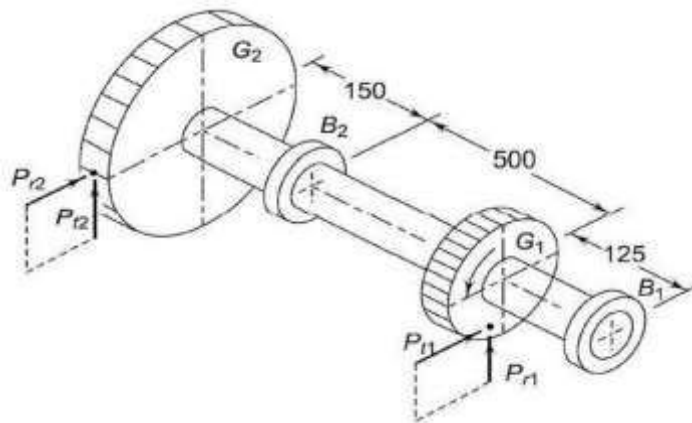
- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2**
- a) Derive the Lewis beam strength equation for spur gear tooth. **03**
 - b) Explain force analysis on Spur gear with the help of figure. **04**
 - c) A pair of spur gears with 20° pressure angle, consists of a 17 teeth pinion meshing with 68 teeth gear. The module and face width are 2.5 and 25 mm respectively. The gears are machined to meet the specifications of Grade 10 and are heat treated to a surface hardness of 250 BHN. Determine: **07**
 - i) The optimum speed for maximum power transmitting capacity; and
 - ii) The maximum power transmitted by the gears at the above speed.
- Q.3**
- a) Discuss force analysis of helical gear. **03**
 - b) Derive the expression for virtual number of teeth for helical gears. **04**
 - c) A pair of parallel helical gears consists of a 20 teeth pinion meshing with a 100 teeth gear. The pinion rotates at 720 rpm. The normal pressure angle is 20°, while the helix angle is 25°. The face width is 40 mm and the normal module is 4 mm. The pinion as well as the gear is made of steel 40C8 ($S_{ut} = 600 \text{ N/mm}^2$) and heat treated to a surface hardness of 300 BHN. The service factor and the factor of safety are 1.5 and 2 respectively. Assume that the velocity factor accounts for the dynamic load and calculate the power transmitting capacity of gears. **07**
- Q.4**
- a) Discuss advantages and disadvantages of worm gear drives. **03**
 - b) Define the following terms related to worm gear **04**
 - i) Lead
 - ii) Lead Angle
 - iii) Helix Angle
 - iv) Single-start threads
 - c) A pair of worm gears is designated as, 1/30/10/8 Calculate **07**
 - i) the center distance;
 - ii) the speed reduction;
 - iii) the dimensions of the worm; and
 - iv) the dimensions of the worm wheel

Section – II

- Q.5**
- Explain terminology used in straight bevel gear. **03**
 - Discuss various mounting methods of bevel gears with figure. **04**
 - A pair of straight bevel gears consists of a 24-teeth pinion meshing with a 48 teeth gear. The module at the outside diameter is 6 mm, while the face width is 50 mm. The gears are made of grey cast iron FG 220 ($S_{ut} = 220 \text{ N/mm}^2$). The pressure angle is 20° . The teeth are generated and assume that velocity factor accounts for the dynamic load. The pinion rotates at 300 rpm and the service factor is 1.5. The Lewis form factor based on formative number of teeth = 0.3473 and $C_v = 5.6/(5.6 + \sqrt{v})$. Calculate: **07**
 - the beam strength of the tooth
 - the static load that the gears can transmit with a factor of safety of 2 for bending consideration; and
 - the rated power that the gears can transmit
- Q.6**
- Discuss Hydrodynamic bearing with neat sketch. **03**
 - With the help of figure explain any 4 types of Rolling Contact Bearings. **04**
 - A shaft transmitting 50 kW at 125 rpm from the gear G1 to the gear G2 and mounted on two single-row deep groove ball bearings B1 and B2 is shown in Fig. The gear tooth forces are $P_{t1} = 15915 \text{ N}$, $P_{r1} = 5793 \text{ N}$, $P_{t2} = 9549 \text{ N}$, $P_{r2} = 3476 \text{ N}$. The diameter of the shaft at bearings B1 and B2 is 75 mm. The load factor is 1.4 and the expected life for 90% of the bearings is 10000 h. Find Dynamic load at bearings B1 and B2. **07**



- Q.7**
- Discuss Block brake with short shoe with figure. **03**
 - Discuss the working of Single Plate Clutch with figure. **04**
 - A multi-disk clutch consists of five steel plates and four bronze plates. The inner and outer diameters of the friction disks are 75 and 150 mm respectively. The coefficient of friction is 0.1 and the intensity of pressure on friction lining is limited to 0.3 N/mm^2 . Assuming uniform wear theory, calculate: **07**
 - the required force to engage the clutch; and
 - power transmitting capacity at 750 rpm

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) In Lewis equation, gear tooth is considered as _____.
 a) simply supported beam b) cantilever beam
 c) curved beam d) none of the above
- 2) According to Lewis equation _____.
 a) pinion is always weaker than gear
 b) pinion is weaker than gear if made of same material
 c) gear is weaker than pinion if made of same material
 d) none of the above
- 3) The friction material of the brake should have _____.
 a) high coefficient of friction b) low coefficient of friction
 c) high surface hardness d) high endurance limit strength
- 4) In thrust bearings, the load acts _____.
 a) along the axis of rotation
 b) perpendicular to the axis of rotation
 c) parallel to the axis of rotation
 d) a and c
- 5) Worm gears are widely used when _____.
 a) velocity ratio is high
 b) space is limited
 c) axes of shafts are non-intersecting
 d) all the three
- 6) The main advantage of worm gear drive is _____.
 a) ease of manufacturing b) high velocity ratio
 c) low power loss d) low cost
- 7) Taper roller bearing is used to take _____.
 a) only radial load b) only axial load
 c) only torque d) both axial and radial loads

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

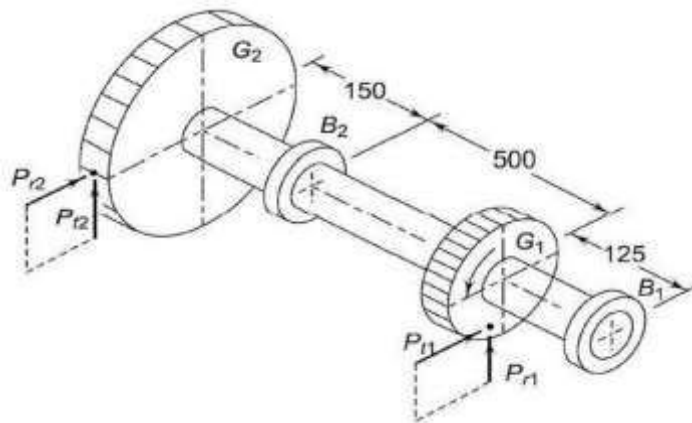
- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2**
- a) Derive the Lewis beam strength equation for spur gear tooth. **03**
 - b) Explain force analysis on Spur gear with the help of figure. **04**
 - c) A pair of spur gears with 20° pressure angle, consists of a 17 teeth pinion meshing with 68 teeth gear. The module and face width are 2.5 and 25 mm respectively. The gears are machined to meet the specifications of Grade 10 and are heat treated to a surface hardness of 250 BHN. Determine: **07**
 - i) The optimum speed for maximum power transmitting capacity; and
 - ii) The maximum power transmitted by the gears at the above speed.
- Q.3**
- a) Discuss force analysis of helical gear. **03**
 - b) Derive the expression for virtual number of teeth for helical gears. **04**
 - c) A pair of parallel helical gears consists of a 20 teeth pinion meshing with a 100 teeth gear. The pinion rotates at 720 rpm. The normal pressure angle is 20°, while the helix angle is 25°. The face width is 40 mm and the normal module is 4 mm. The pinion as well as the gear is made of steel 40C8 ($S_{ut} = 600 \text{ N/mm}^2$) and heat treated to a surface hardness of 300 BHN. The service factor and the factor of safety are 1.5 and 2 respectively. Assume that the velocity factor accounts for the dynamic load and calculate the power transmitting capacity of gears. **07**
- Q.4**
- a) Discuss advantages and disadvantages of worm gear drives. **03**
 - b) Define the following terms related to worm gear **04**
 - i) Lead
 - ii) Lead Angle
 - iii) Helix Angle
 - iv) Single-start threads
 - c) A pair of worm gears is designated as, 1/30/10/8 Calculate **07**
 - i) the center distance;
 - ii) the speed reduction;
 - iii) the dimensions of the worm; and
 - iv) the dimensions of the worm wheel

Section – II

- Q.5**
- Explain terminology used in straight bevel gear. 03
 - Discuss various mounting methods of bevel gears with figure. 04
 - A pair of straight bevel gears consists of a 24-teeth pinion meshing with a 48 teeth gear. The module at the outside diameter is 6 mm, while the face width is 50 mm. The gears are made of grey cast iron FG 220 ($S_{ut} = 220 \text{ N/mm}^2$). The pressure angle is 20° . The teeth are generated and assume that velocity factor accounts for the dynamic load. The pinion rotates at 300 rpm and the service factor is 1.5. The Lewis form factor based on formative number of teeth = 0.3473 and $C_v = 5.6/(5.6 + \sqrt{v})$. Calculate: 07
 - the beam strength of the tooth
 - the static load that the gears can transmit with a factor of safety of 2 for bending consideration; and
 - the rated power that the gears can transmit
- Q.6**
- Discuss Hydrodynamic bearing with neat sketch. 03
 - With the help of figure explain any 4 types of Rolling Contact Bearings. 04
 - A shaft transmitting 50 kW at 125 rpm from the gear G1 to the gear G2 and mounted on two single-row deep groove ball bearings B1 and B2 is shown in Fig. The gear tooth forces are $P_{t1} = 15915 \text{ N}$, $P_{r1} = 5793 \text{ N}$, $P_{t2} = 9549 \text{ N}$, $P_{r2} = 3476 \text{ N}$. The diameter of the shaft at bearings B1 and B2 is 75 mm. The load factor is 1.4 and the expected life for 90% of the bearings is 10000 h. Find Dynamic load at bearings B1 and B2. 07



- Q.7**
- Discuss Block brake with short shoe with figure. 03
 - Discuss the working of Single Plate Clutch with figure. 04
 - A multi-disk clutch consists of five steel plates and four bronze plates. The inner and outer diameters of the friction disks are 75 and 150 mm respectively. The coefficient of friction is 0.1 and the intensity of pressure on friction lining is limited to 0.3 N/mm^2 . Assuming uniform wear theory, calculate: 07
 - the required force to engage the clutch; and
 - power transmitting capacity at 750 rpm

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) In thrust bearings, the load acts _____.
 a) along the axis of rotation
 b) perpendicular to the axis of rotation
 c) parallel to the axis of rotation
 d) a and c
- 2) Worm gears are widely used when _____.
 a) velocity ratio is high
 b) space is limited
 c) axes of shafts are non-intersecting
 d) all the three
- 3) The main advantage of worm gear drive is _____.
 a) ease of manufacturing b) high velocity ratio
 c) low power loss d) low cost
- 4) Taper roller bearing is used to take _____.
 a) only radial load b) only axial load
 c) only torque d) both axial and radial loads
- 5) The initial contact in helical gears is _____.
 a) point b) line
 c) surface d) unpredictable
- 6) Compared with spur gears, helical gears _____.
 a) run more smoothly b) run with noise and vibrations
 c) consume less power d) run exactly alike
- 7) In helical gears, the distance between two similar points on adjacent teeth, measured in a plane perpendicular to tooth element, is called _____.
 a) normal circular pitch b) transverse circular pitch
 c) axial pitch d) diametral pitch
- 8) In case of spur gears, Lewis form factor depends upon _____.
 a) module b) number of teeth
 c) pressure angle d) b and c

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

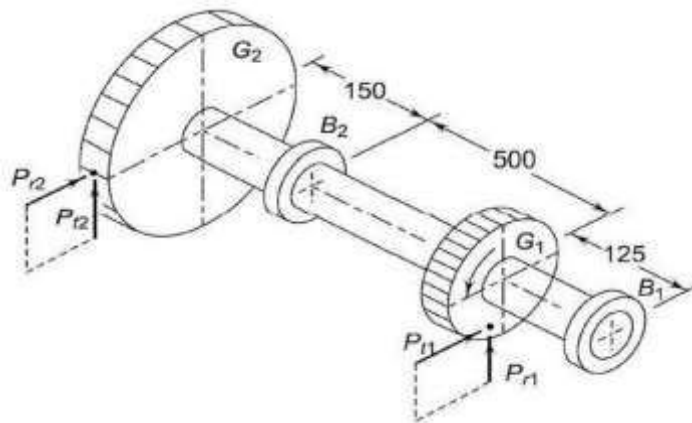
- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2**
- a) Derive the Lewis beam strength equation for spur gear tooth. **03**
 - b) Explain force analysis on Spur gear with the help of figure. **04**
 - c) A pair of spur gears with 20° pressure angle, consists of a 17 teeth pinion meshing with 68 teeth gear. The module and face width are 2.5 and 25 mm respectively. The gears are machined to meet the specifications of Grade 10 and are heat treated to a surface hardness of 250 BHN. Determine: **07**
 - i) The optimum speed for maximum power transmitting capacity; and
 - ii) The maximum power transmitted by the gears at the above speed.
- Q.3**
- a) Discuss force analysis of helical gear. **03**
 - b) Derive the expression for virtual number of teeth for helical gears. **04**
 - c) A pair of parallel helical gears consists of a 20 teeth pinion meshing with a 100 teeth gear. The pinion rotates at 720 rpm. The normal pressure angle is 20°, while the helix angle is 25°. The face width is 40 mm and the normal module is 4 mm. The pinion as well as the gear is made of steel 40C8 ($S_{ut} = 600 \text{ N/mm}^2$) and heat treated to a surface hardness of 300 BHN. The service factor and the factor of safety are 1.5 and 2 respectively. Assume that the velocity factor accounts for the dynamic load and calculate the power transmitting capacity of gears. **07**
- Q.4**
- a) Discuss advantages and disadvantages of worm gear drives. **03**
 - b) Define the following terms related to worm gear **04**
 - i) Lead
 - ii) Lead Angle
 - iii) Helix Angle
 - iv) Single-start threads
 - c) A pair of worm gears is designated as, 1/30/10/8 Calculate **07**
 - i) the center distance;
 - ii) the speed reduction;
 - iii) the dimensions of the worm; and
 - iv) the dimensions of the worm wheel

Section – II

- Q.5**
- Explain terminology used in straight bevel gear. 03
 - Discuss various mounting methods of bevel gears with figure. 04
 - A pair of straight bevel gears consists of a 24-teeth pinion meshing with a 48 teeth gear. The module at the outside diameter is 6 mm, while the face width is 50 mm. The gears are made of grey cast iron FG 220 ($S_{ut} = 220 \text{ N/mm}^2$). The pressure angle is 20° . The teeth are generated and assume that velocity factor accounts for the dynamic load. The pinion rotates at 300 rpm and the service factor is 1.5. The Lewis form factor based on formative number of teeth = 0.3473 and $C_v = 5.6/(5.6 + \sqrt{v})$. Calculate: 07
 - the beam strength of the tooth
 - the static load that the gears can transmit with a factor of safety of 2 for bending consideration; and
 - the rated power that the gears can transmit
- Q.6**
- Discuss Hydrodynamic bearing with neat sketch. 03
 - With the help of figure explain any 4 types of Rolling Contact Bearings. 04
 - A shaft transmitting 50 kW at 125 rpm from the gear G1 to the gear G2 and mounted on two single-row deep groove ball bearings B1 and B2 is shown in Fig. The gear tooth forces are $P_{t1} = 15915 \text{ N}$, $P_{r1} = 5793 \text{ N}$, $P_{t2} = 9549 \text{ N}$, $P_{r2} = 3476 \text{ N}$. The diameter of the shaft at bearings B1 and B2 is 75 mm. The load factor is 1.4 and the expected life for 90% of the bearings is 10000 h. Find Dynamic load at bearings B1 and B2. 07



- Q.7**
- Discuss Block brake with short shoe with figure. 03
 - Discuss the working of Single Plate Clutch with figure. 04
 - A multi-disk clutch consists of five steel plates and four bronze plates. The inner and outer diameters of the friction disks are 75 and 150 mm respectively. The coefficient of friction is 0.1 and the intensity of pressure on friction lining is limited to 0.3 N/mm^2 . Assuming uniform wear theory, calculate: 07
 - the required force to engage the clutch; and
 - power transmitting capacity at 750 rpm

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) The root angle of a bevel gear is equal to _____.
 a) pitch angle + addendum angle b) pitch angle - addendum angle
 c) pitch angle + dedendum angle d) pitch angle - dedendum angle
- 2) The brake used in most of motorcycles is _____.
 a) internal expanding brake b) block brake
 c) band brake d) disk brake
- 3) In Lewis equation, gear tooth is considered as _____.
 a) simply supported beam b) cantilever beam
 c) curved beam d) none of the above
- 4) According to Lewis equation _____.
 a) pinion is always weaker than gear
 b) pinion is weaker than gear if made of same material
 c) gear is weaker than pinion if made of same material
 d) none of the above
- 5) The friction material of the brake should have _____.
 a) high coefficient of friction b) low coefficient of friction
 c) high surface hardness d) high endurance limit strength
- 6) In thrust bearings, the load acts _____.
 a) along the axis of rotation
 b) perpendicular to the axis of rotation
 c) parallel to the axis of rotation
 d) a and c
- 7) Worm gears are widely used when _____.
 a) velocity ratio is high
 b) space is limited
 c) axes of shafts are non-intersecting
 d) all the three

- 8) The main advantage of worm gear drive is _____.
a) ease of manufacturing b) high velocity ratio
c) low power loss d) low cost
- 9) Taper roller bearing is used to take _____.
a) only radial load b) only axial load
c) only torque d) both axial and radial loads
- 10) The initial contact in helical gears is _____.
a) point b) line
c) surface d) unpredictable
- 11) Compared with spur gears, helical gears _____.
a) run more smoothly b) run with noise and vibrations
c) consume less power d) run exactly alike
- 12) In helical gears, the distance between two similar points on adjacent teeth, measured in a plane perpendicular to tooth element, is called _____.
a) normal circular pitch b) transverse circular pitch
c) axial pitch d) diametral pitch
- 13) In case of spur gears, Lewis form factor depends upon _____.
a) module b) number of teeth
c) pressure angle d) b and c
- 14) When two identical bevel gears are used to transmit power between shafts that are intersecting at right angle, they are called, _____.
a) spiral bevel gears b) Miter gears
c) straight bevel gears d) hypoid gears

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Transmission System Design (BTN02601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

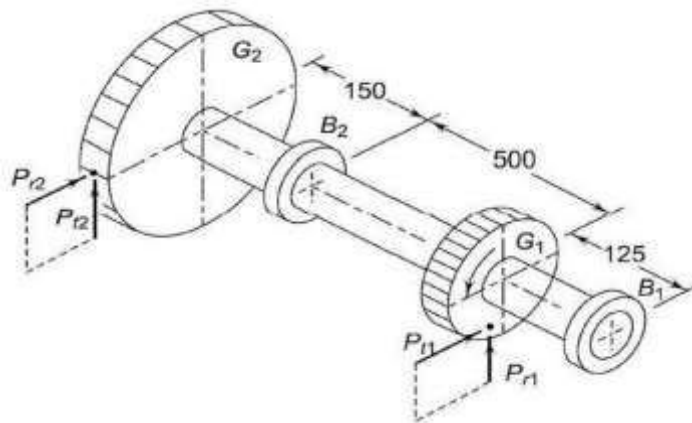
- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2**
- a) Derive the Lewis beam strength equation for spur gear tooth. **03**
 - b) Explain force analysis on Spur gear with the help of figure. **04**
 - c) A pair of spur gears with 20° pressure angle, consists of a 17 teeth pinion meshing with 68 teeth gear. The module and face width are 2.5 and 25 mm respectively. The gears are machined to meet the specifications of Grade 10 and are heat treated to a surface hardness of 250 BHN. Determine: **07**
 - i) The optimum speed for maximum power transmitting capacity; and
 - ii) The maximum power transmitted by the gears at the above speed.
- Q.3**
- a) Discuss force analysis of helical gear. **03**
 - b) Derive the expression for virtual number of teeth for helical gears. **04**
 - c) A pair of parallel helical gears consists of a 20 teeth pinion meshing with a 100 teeth gear. The pinion rotates at 720 rpm. The normal pressure angle is 20°, while the helix angle is 25°. The face width is 40 mm and the normal module is 4 mm. The pinion as well as the gear is made of steel 40C8 ($S_{ut} = 600 \text{ N/mm}^2$) and heat treated to a surface hardness of 300 BHN. The service factor and the factor of safety are 1.5 and 2 respectively. Assume that the velocity factor accounts for the dynamic load and calculate the power transmitting capacity of gears. **07**
- Q.4**
- a) Discuss advantages and disadvantages of worm gear drives. **03**
 - b) Define the following terms related to worm gear **04**
 - i) Lead
 - ii) Lead Angle
 - iii) Helix Angle
 - iv) Single-start threads
 - c) A pair of worm gears is designated as, 1/30/10/8 Calculate **07**
 - i) the center distance;
 - ii) the speed reduction;
 - iii) the dimensions of the worm; and
 - iv) the dimensions of the worm wheel

Section – II

- Q.5**
- Explain terminology used in straight bevel gear. **03**
 - Discuss various mounting methods of bevel gears with figure. **04**
 - A pair of straight bevel gears consists of a 24-teeth pinion meshing with a 48 teeth gear. The module at the outside diameter is 6 mm, while the face width is 50 mm. The gears are made of grey cast iron FG 220 ($S_{ut} = 220 \text{ N/mm}^2$). The pressure angle is 20° . The teeth are generated and assume that velocity factor accounts for the dynamic load. The pinion rotates at 300 rpm and the service factor is 1.5. The Lewis form factor based on formative number of teeth = 0.3473 and $C_v = 5.6/(5.6 + \sqrt{v})$. Calculate: **07**
 - the beam strength of the tooth
 - the static load that the gears can transmit with a factor of safety of 2 for bending consideration; and
 - the rated power that the gears can transmit
- Q.6**
- Discuss Hydrodynamic bearing with neat sketch. **03**
 - With the help of figure explain any 4 types of Rolling Contact Bearings. **04**
 - A shaft transmitting 50 kW at 125 rpm from the gear G1 to the gear G2 and mounted on two single-row deep groove ball bearings B1 and B2 is shown in Fig. The gear tooth forces are $P_{t1} = 15915 \text{ N}$, $P_{r1} = 5793 \text{ N}$, $P_{t2} = 9549 \text{ N}$, $P_{r2} = 3476 \text{ N}$. The diameter of the shaft at bearings B1 and B2 is 75 mm. The load factor is 1.4 and the expected life for 90% of the bearings is 10000 h. Find Dynamic load at bearings B1 and B2. **07**



- Q.7**
- Discuss Block brake with short shoe with figure. **03**
 - Discuss the working of Single Plate Clutch with figure. **04**
 - A multi-disk clutch consists of five steel plates and four bronze plates. The inner and outer diameters of the friction disks are 75 and 150 mm respectively. The coefficient of friction is 0.1 and the intensity of pressure on friction lining is limited to 0.3 N/mm^2 . Assuming uniform wear theory, calculate: **07**
 - the required force to engage the clutch; and
 - power transmitting capacity at 750 rpm

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Answer cannot be changed once it is marked.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer: 14

- 1) Measurement of speed of a rotating shaft by an electric tachometer is a _____.
 a) primary measurement
 b) non-contact type measurement
 c) secondary measurement
 d) tertiary measurement
- 2) Which of the following metals is preferred in a resistance-thermometer employed for measuring the temperature in the range -200°C 1000°C?
 a) Platinum
 b) Copper
 c) Nickel
 d) Tungsten
- 3) Which condition is essential in the operation of Mcleod gauge?
 a) Isobaric
 b) Adiabatic
 c) Isothermal
 d) Isochoric
- 4) A permanent magnet is used in _____ tachometer.
 a) inductive pickup
 b) capacitive pickup
 c) Mechanical
 d) photoelectric pickup
- 5) _____ must be mounted vertically to use.
 a) turbine meter
 b) gas flow meter
 c) Rotameter
 d) Anemometer
- 6) A Prony Brake dynamometer measures the _____.
 a) Crank shaft force
 b) Crank shaft torque
 c) Engine Brake Power
 d) Power input of Pump
- 7) A strain gauge converts Mechanical displacement in to change in _____.
 a) Inductance
 b) Resistance
 c) Capacitance
 d) Reluctance
- 8) A comparator is an essential feature of _____.
 a) manual system
 b) open loop system
 c) any system
 d) feedback control system

Seat No.	
----------	--

Set	P
-----	---

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)**

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

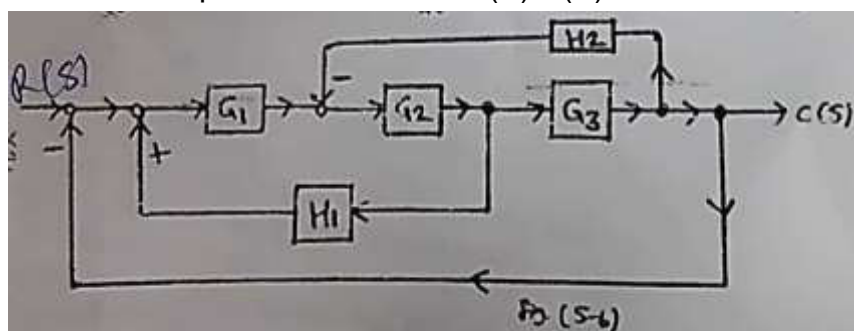
- Instructions:** 1) Solve any two questions from each Section.
2) Use of scientific calculator is allowed.
3) Figures to right indicate full marks.
4) Assume additional suitable data if necessary and state it clearly.
5) Use university graph paper and semi-log paper if required.

Section – I

- Q.2** a) Explain following system characteristics. 04
 1) Accuracy
 2) dead zone
 b) Explain with a neat sketch turbine type flow meter. 06
 c) Explain the basic principle of working of R.T.D. 04
- Q.3** a) Describe with a neat sketch 'McLeod gauge'. 06
 b) Explain with a neat sketch 'stroboscope'. 04
 c) Explain with a neat sketch 'Gear Train Dynamometer'. 04
- Q.4** a) Derive 'the expression for voltage output of Wheatstone's bridge circuit using strain gauges. 06
 b) A measuring system consists of a transducer, amplifier and recorder with individual sensitivities as respectively, 04
 $k_1 = 0.25mV/^\circ C, k_2 = 2.5V/mV, k_3 = 4mm/V$
 Determine the overall sensitivity of this system.
 c) Explain a hydraulic load cell. 04

Section – II

- Q.5** a) Differentiate between open loop and closed loop control systems. 04
 b) For the block diagram of a feedback control system as shown in fig. (5-b), obtain the closed loop transfer function $C(S)/R(S)$ 06



- c) Explain the 'Magnitude Condition' in Root Locus and its importance. 04

- Q.6 a)** For a control system represented by, **09**
- $$G(S)H(S) = \frac{K}{S(S+1)(S+5)}$$
- Sketch the complete Root Locus and comment on the system stability.
- b)** Explain with a graph, P+D controller. What do you mean by 'Derivative Time'? **05**
-
- Q.7 a)** For a unity feedback control system given by, **09**
- $$G(S) = \frac{200(S+2)}{S^2(S+40)}$$
- Sketch the Bode Plots and comment on the system stability.
- b)** Explain Bode plots for simple poles & zeros. **05**

Seat No.	
----------	--

Set	Q
-----	---

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

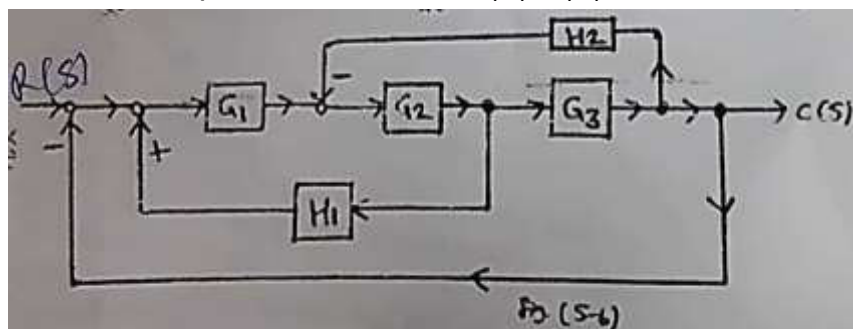
- Instructions:** 1) Solve any two questions from each Section.
 2) Use of scientific calculator is allowed.
 3) Figures to right indicate full marks.
 4) Assume additional suitable data if necessary and state it clearly.
 5) Use university graph paper and semi-log paper if required.

Section – I

- Q.2** a) Explain following system characteristics. **04**
 1) Accuracy
 2) dead zone
 b) Explain with a neat sketch turbine type flow meter. **06**
 c) Explain the basic principle of working of R.T.D. **04**
- Q.3** a) Describe with a neat sketch 'McLeod gauge'. **06**
 b) Explain with a neat sketch 'stroboscope'. **04**
 c) Explain with a neat sketch 'Gear Train Dynamometer'. **04**
- Q.4** a) Derive 'the expression for voltage output of Wheatstone's bridge circuit using strain gauges. **06**
 b) A measuring system consists of a transducer, amplifier and recorder with individual sensitivities as respectively, **04**
 $k_1 = 0.25mV/^\circ C, k_2 = 2.5V/mV, k_3 = 4mm/V$
 Determine the overall sensitivity of this system.
 c) Explain a hydraulic load cell. **04**

Section – II

- Q.5** a) Differentiate between open loop and closed loop control systems. **04**
 b) For the block diagram of a feedback control system as shown in fig. (5-b), obtain the closed loop transfer function $C(S)/R(S)$ **06**



- c) Explain the 'Magnitude Condition' in Root Locus and its importance. **04**

- Q.6 a)** For a control system represented by, **09**
- $$G(S)H(S) = \frac{K}{S(S+1)(S+5)}$$
- Sketch the complete Root Locus and comment on the system stability.
- b)** Explain with a graph, P+D controller. What do you mean by 'Derivative Time'? **05**
- Q.7 a)** For a unity feedback control system given by, **09**
- $$G(S) = \frac{200(S+2)}{S^2(S+40)}$$
- Sketch the Bode Plots and comment on the system stability.
- b)** Explain Bode plots for simple poles & zeros. **05**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Answer cannot be changed once it is marked.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:

14

- 1) A root locus has any branches originating from infinity when _____.
 - a) $P = Z$
 - b) $P > Z$
 - c) $Z > P$
 - d) $Z = 0$
- 2) 'Centroid' of asymptotes is a point which _____.
 - a) may be real or complex
 - b) is real but may or may not lie on the root locus
 - c) is real and always lies on the root locus
 - d) is always imaginary
- 3) 'Phase Margin' is always calculated at _____.
 - a) Corner frequency
 - b) Phase cross-over frequency
 - c) Gain cross-over frequency
 - d) Highest magnitude
- 4) If a system has two poles at the origin, its Magnitude Plot will have a starting slope of _____.
 - a) -20 db/decade
 - b) -40 db/decade
 - c) 20 db/decade
 - d) 40 db/decade
- 5) Measurement of speed of a rotating shaft by an electric tachometer is a _____.
 - a) primary measurement
 - b) non-contact type measurement
 - c) secondary measurement
 - d) tertiary measurement
- 6) Which of the following metals is preferred in a resistance-thermometer employed for measuring the temperature in the range -200°C to 1000°C ?
 - a) Platinum
 - b) Copper
 - c) Nickel
 - d) Tungsten
- 7) Which condition is essential in the operation of McLeod gauge?
 - a) Isobaric
 - b) Adiabatic
 - c) Isothermal
 - d) Isochoric

- 8) A permanent magnet is used in _____ tachometer.
a) inductive pickup b) capacitive pickup
c) Mechanical d) photoelectric pickup
- 9) _____ must be mounted vertically to use.
a) turbine meter b) gas flow meter
c) Rotameter d) Anemometer
- 10) A Prony Brake dynamometer measures the _____.
a) Crank shaft force b) Crank shaft torque
c) Engine Brake Power d) Power input of Pump
- 11) A strain gauge converts Mechanical displacement in to change in _____.
a) Inductance b) Resistance
c) Capacitance d) Reluctance
- 12) A comparator is an essential feature of _____.
a) manual system b) open loop system
c) any system d) feedback control system
- 13) Integral Time is given by _____.
a) K_p/K_i b) K_p/K_d
c) K_d/K_p d) K_i/K_p
- 14) If error is constant, _____ action gives a constant output.
a) P - action b) D- action
c) ON/OFF action d) I - action

Seat No.	
----------	--

Set	R
-----	---

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)**

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

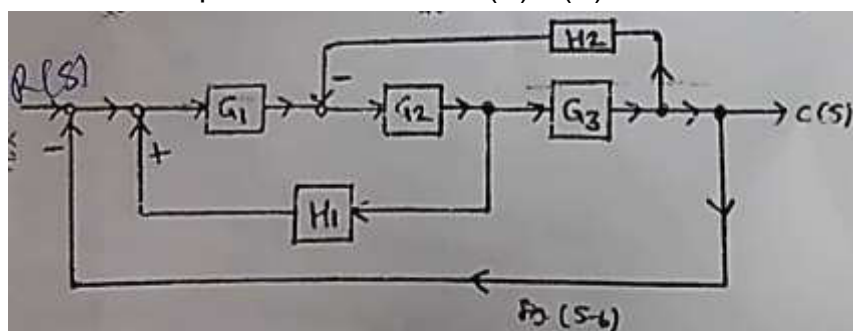
- Instructions:** 1) Solve any two questions from each Section.
2) Use of scientific calculator is allowed.
3) Figures to right indicate full marks.
4) Assume additional suitable data if necessary and state it clearly.
5) Use university graph paper and semi-log paper if required.

Section – I

- Q.2** a) Explain following system characteristics. **04**
 1) Accuracy
 2) dead zone
 b) Explain with a neat sketch turbine type flow meter. **06**
 c) Explain the basic principle of working of R.T.D. **04**
- Q.3** a) Describe with a neat sketch 'McLeod gauge'. **06**
 b) Explain with a neat sketch 'stroboscope'. **04**
 c) Explain with a neat sketch 'Gear Train Dynamometer'. **04**
- Q.4** a) Derive 'the expression for voltage output of Wheatstone's bridge circuit using strain gauges. **06**
 b) A measuring system consists of a transducer, amplifier and recorder with individual sensitivities as respectively, **04**
 $k_1 = 0.25mV/^\circ C, k_2 = 2.5V/mV, k_3 = 4mm/V$
 Determine the overall sensitivity of this system.
 c) Explain a hydraulic load cell. **04**

Section – II

- Q.5** a) Differentiate between open loop and closed loop control systems. **04**
 b) For the block diagram of a feedback control system as shown in fig. (5-b), obtain the closed loop transfer function $C(S)/R(S)$ **06**



- c) Explain the 'Magnitude Condition' in Root Locus and its importance. **04**

- Q.6 a)** For a control system represented by, **09**
- $$G(S)H(S) = \frac{K}{S(S+1)(S+5)}$$
- Sketch the complete Root Locus and comment on the system stability.
- b)** Explain with a graph, P+D controller. What do you mean by 'Derivative Time'? **05**
- Q.7 a)** For a unity feedback control system given by, **09**
- $$G(S) = \frac{200(S+2)}{S^2(S+40)}$$
- Sketch the Bode Plots and comment on the system stability.
- b)** Explain Bode plots for simple poles & zeros. **05**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Answer cannot be changed once it is marked.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:

14

- 1) A Prony Brake dynamometer measures the _____.
 a) Crank shaft force b) Crank shaft torque
 c) Engine Brake Power d) Power input of Pump
- 2) A strain gauge converts Mechanical displacement in to change in _____.
 a) Inductance b) Resistance
 c) Capacitance d) Reluctance
- 3) A comparator is an essential feature of _____.
 a) manual system b) open loop system
 c) any system d) feedback control system
- 4) Integral Time is given by _____.
 a) K_p/K_i b) K_p/K_d
 c) K_d/K_p d) K_i/K_p
- 5) If error is constant, _____ action gives a constant output.
 a) P - action b) D- action
 c) ON/OFF action d) I - action
- 6) A root locus has any branches originating from infinity when _____.
 a) $P = Z$ b) $P > Z$
 c) $Z > P$ d) $Z = 0$
- 7) 'Centroid' of asymptotes is a point which _____.
 a) may be real or complex
 b) is real but may or may not lie on the root locus
 c) is real and always lies on the root locus
 d) is always imaginary
- 8) 'Phase Margin' is always calculated at _____.
 a) Corner frequency b) Phase cross-over frequency
 c) Gain cross-over frequency d) Highest magnitude

Seat No.	
----------	--

Set	S
-----	---

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Instrumentation and Control Engineering (BTN02602)**

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

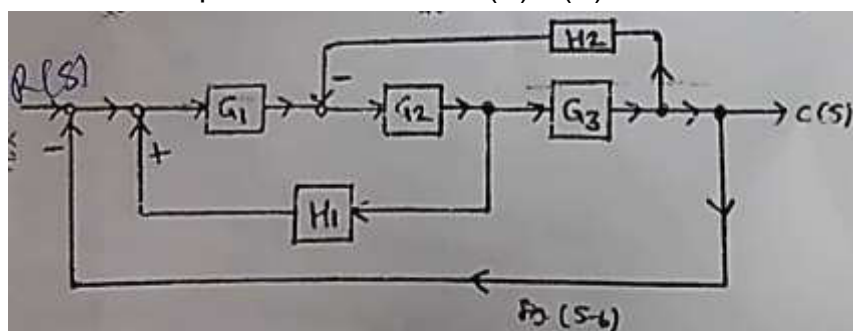
- Instructions:** 1) Solve any two questions from each Section.
2) Use of scientific calculator is allowed.
3) Figures to right indicate full marks.
4) Assume additional suitable data if necessary and state it clearly.
5) Use university graph paper and semi-log paper if required.

Section – I

- Q.2** a) Explain following system characteristics. 04
 1) Accuracy
 2) dead zone
 b) Explain with a neat sketch turbine type flow meter. 06
 c) Explain the basic principle of working of R.T.D. 04
- Q.3** a) Describe with a neat sketch 'McLeod gauge'. 06
 b) Explain with a neat sketch 'stroboscope'. 04
 c) Explain with a neat sketch 'Gear Train Dynamometer'. 04
- Q.4** a) Derive 'the expression for voltage output of Wheatstone's bridge circuit using strain gauges. 06
 b) A measuring system consists of a transducer, amplifier and recorder with individual sensitivities as respectively, $k_1 = 0.25mV/^\circ C, k_2 = 2.5V/mV, k_3 = 4mm/V$ Determine the overall sensitivity of this system. 04
 c) Explain a hydraulic load cell. 04

Section – II

- Q.5** a) Differentiate between open loop and closed loop control systems. 04
 b) For the block diagram of a feedback control system as shown in fig. (5-b), obtain the closed loop transfer function $C(S)/R(S)$ 06



- c) Explain the 'Magnitude Condition' in Root Locus and its importance. 04

- Q.6 a)** For a control system represented by, **09**
- $$G(S)H(S) = \frac{K}{S(S+1)(S+5)}$$
- Sketch the complete Root Locus and comment on the system stability.
- b)** Explain with a graph, P+D controller. What do you mean by 'Derivative Time'? **05**
-
- Q.7 a)** For a unity feedback control system given by, **09**
- $$G(S) = \frac{200(S+2)}{S^2(S+40)}$$
- Sketch the Bode Plots and comment on the system stability.
- b)** Explain Bode plots for simple poles & zeros. **05**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the Correct answer.

14

- 1) When a composite wall of three layers in series having thermal resistances R_1, R_2 and R_3 respectively. The heat transfer takes place normal to the surface of the layers. How is the total thermal resistance of the composite system calculated?

a) $1/(R_1 + R_2 + R_3)$	b) $((1/R_1) + (1/R_2) + (1/R_3))$
c) $(R_1 + R_2 + R_3)$	d) None of the above
- 2) The critical radius of a hollow sphere having thermal conductivity k and h_0 as convective heat transfer coefficient of outer fluid is given by

a) h_0/k	b) k/h_0
c) $2k/h_0$	d) $h_0/2k$
- 3) In which of the following cases most unsteady heat flow occurs?
 - a) Through the walls of a furnace
 - b) Through lagged pipes carrying steam
 - c) Through the wall of a refrigerator
 - d) During annealing of castings
- 4) What is the purpose of using fins in a particular heat transfer system?
 - a) To decrease rate of heat transfer
 - b) To increase rate of heat transfer
 - c) To maintain rate of heat transfer at a constant rate
 - d) cannot say
- 5) Aluminum is used as a fin material because _____.
 - a) It has higher convection heat transfer coefficient
 - b) It has higher thermal conductivity
 - c) It has lower convection heat transfer coefficient
 - d) It has lower thermal conductivity
- 6) What is the relation between reflectivity (ρ), absorptivity (α) and transmissivity (τ)?

a) $\rho - \alpha + \tau = 1$	b) $\rho + \alpha - \tau = 1$
c) $\rho + \alpha + \tau = 1$	d) $\rho - \alpha - \tau = 1$

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary.
 4) Use of scientific calculator is allowed.

Section – I

Q.2 Attempt the following questions.

- a) Define thermal conductivity. Explain the effect of temperature on thermal conductivity for solid, liquid and gases. **04**
- b) Derive the general heat conduction equation in three dimensions in Cartesian coordinates. **05**
- c) A wall of a furnace is made up of inside layer of silica brick 120 mm thick covered with layer of magnetite brick 240 mm thick. The temperature at the inside surface of silica brick wall and outside surface of magnetite brick wall are 725°C and 110°C respectively. The contact thermal resistance between the two walls at the interface is 0.0035°C/w per unit wall area. If thermal conductivities of silica and magnetite bricks are $1.7\text{W/m}^{\circ}\text{C}$ and $5.8\text{W/m}^{\circ}\text{C}$ Calculate **05**
- i) The rate of heat loss per unit area of walls, and
- ii) The temperature drop at the interface

Q.3 Attempt the following questions.

- a) Derive an expression for temperature distribution and heat flow rate for infinitely long fin. **04**
- b) Find out the amount of heat transferred through an iron fin of length 50 mm width 100 mm & thickness 5 mm Assume $k=210\text{W/m}^{\circ}\text{C}$ & $h=42\text{W/m}^2\text{C}$ for the material of fin and the temperature and the base of fin 80°C . Also determine the temperature at the tip of fin when atmosphere temperature 20°C **05**
- c) A small electrical heating application uses wire of 2mm diameter with 0.8 mm thick insulation ($k=0.12\text{W/m}^{\circ}\text{C}$). The heat transfer coefficient on the insulation surface is $35\text{W/m}^2\text{C}$. Determine the critical thickness of insulation in this case & the percentage change in the heat transfer rate if the critical thickness is used. Assuming that the temperature difference between the surface of the wire and surrounding air remains unchanged. **05**

Q.4 Attempt the following questions.

- a) Explain the following terms: **04**
- i) Solid angle.
- ii) Radiosity.
- iii) Irradiation.

- b) State Plank's law of radiation. Hence derive Wien's displacement law. 05
- c) Determine the rate of heat loss by radiation from a steel tube of outside diameter 70 mm and 3 m long at the temperature of 227°C. If the tube is located in a square brick conduit of 0.3 m side and 27°C. Take $\varepsilon_{(Steel)} = 0.79$ & $\varepsilon_{(brick)} = 0.93$ 05

Section – II

Q.5 Attempt the following question.

- a) Show by dimensional analysis, $Nu = f(Gr, Pr)$ for natural convection. 04
- b) Explain with neat sketch velocity and thermal boundary layer. 05
- c) The Crankcase of an I.C. Engine measuring 80cm × 20 cm may be idealized as a flat plate. The engine runs at 90 Km/hr & the crankcase is cooled by the air flowing past it at the same speed. Calculate the heat loss from the crank surface maintained at 85°C to the ambient air at 15 °C. Due to road induced vibration the boundary layer becomes turbulent from the leading edge itself. 05
- The Properties of air at 50°C are:
 $K = 0.02824 \text{ W/m } ^\circ\text{C}$, $\gamma = 17.95 \times 10^{-6} \text{ m/s}^2$, $Pr = 0.698$
 Use
 $Nu = 0.036(Re)^{0.8}(Pr)^{0.333}$

Q.6 Attempt the following questions.

- a) Define Condensation and explain its types. 04
- b) Draw typical pool boiling curve and explain various regimes of pool boiling. 05
- c) A counter flow double pipe heat exchanger using hot water at the rate of 10500 kg/h. the steam enters the heat exchanger at 180°C & leaves at 130°C . The inlet & exit temperatures of water are 30°C and 80°C resp. if overall heat transfer coefficient from steam to water is 814 W/m²°C .Calculate the heat transfer area. What would be the increase in area if fluid flow were parallel. Take specific heat of water 4.187 KJ/Kg K. 05

Q.7 Attempt the following questions.

- a) Explain Heat Pipe working and its applications. 04
- b) Derive an expression for determining the LMTD of parallel flow heat exchanger. 05
- c) A chemical having specific heat of 3.3 KJ/KgK flowing at the rate of 20000 Kg/hr. enters the parallel flow heat exchanger at 120°C. The flow rate of cooling water is 50000 Kg/hr having specific heat of 4.186 KJ/KgK with an inlet temperature 20°C. The heat transfer area is 10 m² and the overall heat transfer coefficient is 1050 W/m²K. 05
- Find:
- i) The effectiveness of heat exchanger
 - ii) The outlet temperature of water and chemical

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the Correct answer.

14

- 1) A _____ body reflects entire radiation incident on it.
 - a) Transparent
 - b) Black
 - c) Gray
 - d) White
- 2) In a film condensation, the vertical plate temperature should be _____.
 - a) More than the saturation temperature of the vapour
 - b) Less than the saturation temperature of the vapour
 - c) Equal to the saturation temperature of the vapour
 - d) None of the above
- 3) _____ number is generally associated with only natural convection heat transfer.
 - a) Prandtl
 - b) Weber
 - c) Nusselt
 - d) Grashoff
- 4) The thickness of thermal boundary layer is equal to that of hydrodynamic boundary layer when Prandtl number is _____.
 - a) 0
 - b) 0.1
 - c) 0.5
 - d) 1.0
- 5) An automobile radiator is _____ type of heat exchanger.
 - a) cross-flow
 - b) regenerator
 - c) counter-flow
 - d) recuperator
- 6) For the same heat transfer Q and, same overall, heat transfer coefficient U_0 , surface area required for counter flow operation is always _____.
 - a) less than parallel flow
 - b) more than parallel flow
 - c) same as parallel flow
 - d) unpredictable

- 7) In parallel flow heat exchangers,
- the exit temperature of hot fluid is always equal to the exit temperature of cold fluid
 - the exit temperature of hot fluid is always less than the exit temperature of cold fluid
 - the exit temperature of hot fluid is always more than the exit temperature of cold fluid
 - we cannot predict comparison between exit temperatures of hot fluid and cold fluid
- 8) When a composite wall of three layers in series having thermal resistances R_1, R_2 and R_3 respectively. The heat transfer takes place normal to the surface of the layers. How is the total thermal resistance of the composite system calculated?
- $1/(R_1 + R_2 + R_3)$
 - $((1/R_1) + (1/R_2) + (1/R_3))$
 - $(R_1 + R_2 + R_3)$
 - None of the above
- 9) The critical radius of a hollow sphere having thermal conductivity k and h_0 as convective heat transfer coefficient of outer fluid is given by
- h_0/k
 - k/h_0
 - $2k/h_0$
 - $h_0/2k$
- 10) In which of the following cases most unsteady heat flow occurs?
- Through the walls of a furnace
 - Through lagged pipes carrying steam
 - Through the wall of a refrigerator
 - During annealing of castings
- 11) What is the purpose of using fins in a particular heat transfer system?
- To decrease rate of heat transfer
 - To increase rate of heat transfer
 - To maintain rate of heat transfer at a constant rate
 - cannot say
- 12) Aluminum is used as a fin material because _____.
- It has higher convection heat transfer coefficient
 - It has higher thermal conductivity
 - It has lower convection heat transfer coefficient
 - It has lower thermal conductivity
- 13) What is the relation between reflectivity (ρ), absorptivity (α) and transmissivity (τ)?
- $\rho - \alpha + \tau = 1$
 - $\rho + \alpha - \tau = 1$
 - $\rho + \alpha + \tau = 1$
 - $\rho - \alpha - \tau = 1$
- 14) Unit of thermal diffusivity _____.
- m/s^2
 - m^2/s
 - J/s
 - None of the above

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary.
 4) Use of scientific calculator is allowed.

Section – I

Q.2 Attempt the following questions.

- a) Define thermal conductivity. Explain the effect of temperature on thermal conductivity for solid, liquid and gases. **04**
- b) Derive the general heat conduction equation in three dimensions in Cartesian coordinates. **05**
- c) A wall of a furnace is made up of inside layer of silica brick 120 mm thick covered with layer of magnetite brick 240 mm thick. The temperature at the inside surface of silica brick wall and outside surface of magnetite brick wall are 725°C and 110°C respectively. The contact thermal resistance between the two walls at the interface is 0.0035°C/w per unit wall area. If thermal conductivities of silica and magnetite bricks are $1.7\text{W/m}^{\circ}\text{C}$ and $5.8\text{W/m}^{\circ}\text{C}$ Calculate **05**
- i) The rate of heat loss per unit area of walls, and
- ii) The temperature drop at the interface

Q.3 Attempt the following questions.

- a) Derive an expression for temperature distribution and heat flow rate for infinitely long fin. **04**
- b) Find out the amount of heat transferred through an iron fin of length 50 mm width 100 mm & thickness 5 mm Assume $k=210\text{W/m}^{\circ}\text{C}$ & $h=42\text{W/m}^2\text{C}$ for the material of fin and the temperature and the base of fin 80°C . Also determine the temperature at the tip of fin when atmosphere temperature 20°C **05**
- c) A small electrical heating application uses wire of 2mm diameter with 0.8 mm thick insulation ($k=0.12\text{W/m}^{\circ}\text{C}$). The heat transfer coefficient on the insulation surface is $35\text{W/m}^2\text{C}$. Determine the critical thickness of insulation in this case & the percentage change in the heat transfer rate if the critical thickness is used. Assuming that the temperature difference between the surface of the wire and surrounding air remains unchanged. **05**

Q.4 Attempt the following questions.

- a) Explain the following terms: **04**
- i) Solid angle.
- ii) Radiosity.
- iii) Irradiation.

- b) State Plank's law of radiation. Hence derive Wien's displacement law. 05
- c) Determine the rate of heat loss by radiation from a steel tube of outside diameter 70 mm and 3 m long at the temperature of 227°C. If the tube is located in a square brick conduit of 0.3 m side and 27°C. Take $\varepsilon_{(Steel)} = 0.79$ & $\varepsilon_{(brick)} = 0.93$ 05

Section – II

Q.5 Attempt the following question.

- a) Show by dimensional analysis, $Nu = f(Gr, Pr)$ for natural convection. 04
- b) Explain with neat sketch velocity and thermal boundary layer. 05
- c) The Crankcase of an I.C. Engine measuring 80cm × 20 cm may be idealized as a flat plate. The engine runs at 90 Km/hr & the crankcase is cooled by the air flowing past it at the same speed. Calculate the heat loss from the crank surface maintained at 85°C to the ambient air at 15 °C. Due to road induced vibration the boundary layer becomes turbulent from the leading edge itself. 05
- The Properties of air at 50°C are:
 $K = 0.02824 \text{ W/m } ^\circ\text{C}$, $\gamma = 17.95 \times 10^{-6} \text{ m/s}^2$, $Pr = 0.698$
 Use
 $Nu = 0.036(Re)^{0.8}(Pr)^{0.333}$

Q.6 Attempt the following questions.

- a) Define Condensation and explain its types. 04
- b) Draw typical pool boiling curve and explain various regimes of pool boiling. 05
- c) A counter flow double pipe heat exchanger using hot water at the rate of 10500 kg/h. the steam enters the heat exchanger at 180°C & leaves at 130°C . The inlet & exit temperatures of water are 30°C and 80°C resp. if overall heat transfer coefficient from steam to water is 814 W/m²°C .Calculate the heat transfer area. What would be the increase in area if fluid flow were parallel. Take specific heat of water 4.187 KJ/Kg K. 05

Q.7 Attempt the following questions.

- a) Explain Heat Pipe working and its applications. 04
- b) Derive an expression for determining the LMTD of parallel flow heat exchanger. 05
- c) A chemical having specific heat of 3.3 KJ/KgK flowing at the rate of 20000 Kg/hr. enters the parallel flow heat exchanger at 120°C. The flow rate of cooling water is 50000 Kg/hr having specific heat of 4.186 KJ/KgK with an inlet temperature 20°C. The heat transfer area is 10 m² and the overall heat transfer coefficient is 1050 W/m²K. 05
- Find:
- i) The effectiveness of heat exchanger
 - ii) The outlet temperature of water and chemical

- 7) In which of the following cases most unsteady heat flow occurs?
- Through the walls of a furnace
 - Through lagged pipes carrying steam
 - Through the wall of a refrigerator
 - During annealing of castings
- 8) What is the purpose of using fins in a particular heat transfer system?
- To decrease rate of heat transfer
 - To increase rate of heat transfer
 - To maintain rate of heat transfer at a constant rate
 - cannot say
- 9) Aluminum is used as a fin material because _____.
- It has higher convection heat transfer coefficient
 - It has higher thermal conductivity
 - It has lower convection heat transfer coefficient
 - It has lower thermal conductivity
- 10) What is the relation between reflectivity (ρ), absorptivity (α) and transmissivity (τ)?
- | | |
|-------------------------------|-------------------------------|
| a) $\rho - \alpha + \tau = 1$ | b) $\rho + \alpha - \tau = 1$ |
| c) $\rho + \alpha + \tau = 1$ | d) $\rho - \alpha - \tau = 1$ |
- 11) Unit of thermal diffusivity _____.
- | | |
|------------|----------------------|
| a) m/s^2 | b) m^2/s |
| c) J/s | d) None of the above |
- 12) A _____ body reflects entire radiation incident on it.
- | | |
|----------------|----------|
| a) Transparent | b) Black |
| c) Gray | d) White |
- 13) In a film condensation, the vertical plate temperature should be _____.
- More than the saturation temperature of the vapour
 - Less than the saturation temperature of the vapour
 - Equal to the saturation temperature of the vapour
 - None of the above
- 14) _____ number is generally associated with only natural convection heat transfer.
- | | |
|------------|-------------|
| a) Prandtl | b) Weber |
| c) Nusselt | d) Grashoff |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary.
 4) Use of scientific calculator is allowed.

Section – I

Q.2 Attempt the following questions.

- a) Define thermal conductivity. Explain the effect of temperature on thermal conductivity for solid, liquid and gases. **04**
- b) Derive the general heat conduction equation in three dimensions in Cartesian coordinates. **05**
- c) A wall of a furnace is made up of inside layer of silica brick 120 mm thick covered with layer of magnetite brick 240 mm thick. The temperature at the inside surface of silica brick wall and outside surface of magnetite brick wall are 725°C and 110°C respectively. The contact thermal resistance between the two walls at the interface is $0.0035^{\circ}\text{C}/\text{W}$ per unit wall area. If thermal conductivities of silica and magnetite bricks are $1.7\text{W}/\text{m}^{\circ}\text{C}$ and $5.8\text{W}/\text{m}^{\circ}\text{C}$ Calculate
- i) The rate of heat loss per unit area of walls, and
 - ii) The temperature drop at the interface

Q.3 Attempt the following questions.

- a) Derive an expression for temperature distribution and heat flow rate for infinitely long fin. **04**
- b) Find out the amount of heat transferred through an iron fin of length 50 mm width 100 mm & thickness 5 mm Assume $k=210\text{W}/\text{m}^{\circ}\text{C}$ & $h=42\text{W}/\text{m}^2\text{C}$ for the material of fin and the temperature and the base of fin 80°C . Also determine the temperature at the tip of fin when atmosphere temperature 20°C **05**
- c) A small electrical heating application uses wire of 2mm diameter with 0.8 mm thick insulation ($k=0.12\text{W}/\text{m}^{\circ}\text{C}$). The heat transfer coefficient on the insulation surface is $35\text{W}/\text{m}^2\text{C}$. Determine the critical thickness of insulation in this case & the percentage change in the heat transfer rate if the critical thickness is used. Assuming that the temperature difference between the surface of the wire and surrounding air remains unchanged. **05**

Q.4 Attempt the following questions.

- a) Explain the following terms: **04**
- i) Solid angle.
 - ii) Radiosity.
 - iii) Irradiation.

- b) State Plank's law of radiation. Hence derive Wien's displacement law. 05
- c) Determine the rate of heat loss by radiation from a steel tube of outside diameter 70 mm and 3 m long at the temperature of 227°C. If the tube is located in a square brick conduit of 0.3 m side and 27°C. Take $\varepsilon_{(Steel)} = 0.79$ & $\varepsilon_{(brick)} = 0.93$ 05

Section – II

Q.5 Attempt the following question.

- a) Show by dimensional analysis, $Nu = f(Gr, Pr)$ for natural convection. 04
- b) Explain with neat sketch velocity and thermal boundary layer. 05
- c) The Crankcase of an I.C. Engine measuring 80cm × 20 cm may be idealized as a flat plate. The engine runs at 90 Km/hr & the crankcase is cooled by the air flowing past it at the same speed. Calculate the heat loss from the crank surface maintained at 85°C to the ambient air at 15 °C. Due to road induced vibration the boundary layer becomes turbulent from the leading edge itself. 05
- The Properties of air at 50°C are:
 $K = 0.02824 \text{ W/m } ^\circ\text{C}$, $\gamma = 17.95 \times 10^{-6} \text{ m/s}^2$, $Pr = 0.698$
 Use
 $Nu = 0.036(Re)^{0.8}(Pr)^{0.333}$

Q.6 Attempt the following questions.

- a) Define Condensation and explain its types. 04
- b) Draw typical pool boiling curve and explain various regimes of pool boiling. 05
- c) A counter flow double pipe heat exchanger using hot water at the rate of 10500 kg/h. the steam enters the heat exchanger at 180°C & leaves at 130°C . The inlet & exit temperatures of water are 30°C and 80°C resp. if overall heat transfer coefficient from steam to water is 814 W/m²°C .Calculate the heat transfer area. What would be the increase in area if fluid flow were parallel. Take specific heat of water 4.187 KJ/Kg K. 05

Q.7 Attempt the following questions.

- a) Explain Heat Pipe working and its applications. 04
- b) Derive an expression for determining the LMTD of parallel flow heat exchanger. 05
- c) A chemical having specific heat of 3.3 KJ/KgK flowing at the rate of 20000 Kg/hr. enters the parallel flow heat exchanger at 120°C. The flow rate of cooling water is 50000 Kg/hr having specific heat of 4.186 KJ/KgK with an inlet temperature 20°C. The heat transfer area is 10 m² and the overall heat transfer coefficient is 1050 W/m²K. 05
- Find:
- i) The effectiveness of heat exchanger
 - ii) The outlet temperature of water and chemical

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the Correct answer.

14

- 1) What is the relation between reflectivity (ρ), absorptivity (α) and transmissivity (τ)?
 - a) $\rho - \alpha + \tau = 1$
 - b) $\rho + \alpha - \tau = 1$
 - c) $\rho + \alpha + \tau = 1$
 - d) $\rho - \alpha - \tau = 1$
- 2) Unit of thermal diffusivity _____.
 - a) m/s^2
 - b) m^2/s
 - c) J/s
 - d) None of the above
- 3) A _____ body reflects entire radiation incident on it.
 - a) Transparent
 - b) Black
 - c) Gray
 - d) White
- 4) In a film condensation, the vertical plate temperature should be _____.
 - a) More than the saturation temperature of the vapour
 - b) Less than the saturation temperature of the vapour
 - c) Equal to the saturation temperature of the vapour
 - d) None of the above
- 5) _____ number is generally associated with only natural convection heat transfer.
 - a) Prandtl
 - b) Weber
 - c) Nusselt
 - d) Grashoff
- 6) The thickness of thermal boundary layer is equal to that of hydrodynamic boundary layer when Prandtl number is _____.
 - a) 0
 - b) 0.1
 - c) 0.5
 - d) 1.0
- 7) An automobile radiator is _____ type of heat exchanger.
 - a) cross-flow
 - b) regenerator
 - c) counter-flow
 - d) recuperator
- 8) For the same heat transfer Q and, same overall, heat transfer coefficient U_0 , surface area required for counter flow operation is always _____.
 - a) less than parallel flow
 - b) more than parallel flow
 - c) same as parallel flow
 - d) unpredictable

- 9) In parallel flow heat exchangers,
- the exit temperature of hot fluid is always equal to the exit temperature of cold fluid
 - the exit temperature of hot fluid is always less than the exit temperature of cold fluid
 - the exit temperature of hot fluid is always more than the exit temperature of cold fluid
 - we cannot predict comparison between exit temperatures of hot fluid and cold fluid
- 10) When a composite wall of three layers in series having thermal resistances R_1 , R_2 and R_3 respectively. The heat transfer takes place normal to the surface of the layers. How is the total thermal resistance of the composite system calculated?
- $1/(R_1 + R_2 + R_3)$
 - $((1/R_1) + (1/R_2) + (1/R_3))$
 - $(R_1 + R_2 + R_3)$
 - None of the above
- 11) The critical radius of a hollow sphere having thermal conductivity k and h_0 as convective heat transfer coefficient of outer fluid is given by
- h_0/k
 - k/h_0
 - $2k/h_0$
 - $h_0/2k$
- 12) In which of the following cases most unsteady heat flow occurs?
- Through the walls of a furnace
 - Through lagged pipes carrying steam
 - Through the wall of a refrigerator
 - During annealing of castings
- 13) What is the purpose of using fins in a particular heat transfer system?
- To decrease rate of heat transfer
 - To increase rate of heat transfer
 - To maintain rate of heat transfer at a constant rate
 - cannot say
- 14) Aluminum is used as a fin material because _____.
- It has higher convection heat transfer coefficient
 - It has higher thermal conductivity
 - It has lower convection heat transfer coefficient
 - It has lower thermal conductivity

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Heat Transfer (BTN02603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary.
 4) Use of scientific calculator is allowed.

Section – I

Q.2 Attempt the following questions.

- a) Define thermal conductivity. Explain the effect of temperature on thermal conductivity for solid, liquid and gases. **04**
- b) Derive the general heat conduction equation in three dimensions in Cartesian coordinates. **05**
- c) A wall of a furnace is made up of inside layer of silica brick 120 mm thick covered with layer of magnetite brick 240 mm thick. The temperature at the inside surface of silica brick wall and outside surface of magnetite brick wall are 725°C and 110°C respectively. The contact thermal resistance between the two walls at the interface is $0.0035^{\circ}\text{C}/\text{W}$ per unit wall area. If thermal conductivities of silica and magnetite bricks are $1.7\text{W}/\text{m}^{\circ}\text{C}$ and $5.8\text{W}/\text{m}^{\circ}\text{C}$ Calculate
 i) The rate of heat loss per unit area of walls, and
 ii) The temperature drop at the interface **05**

Q.3 Attempt the following questions.

- a) Derive an expression for temperature distribution and heat flow rate for infinitely long fin. **04**
- b) Find out the amount of heat transferred through an iron fin of length 50 mm width 100 mm & thickness 5 mm Assume $k=210\text{W}/\text{m}^{\circ}\text{C}$ & $h=42\text{W}/\text{m}^2\text{C}$ for the material of fin and the temperature and the base of fin 80°C . Also determine the temperature at the tip of fin when atmosphere temperature 20°C **05**
- c) A small electrical heating application uses wire of 2mm diameter with 0.8 mm thick insulation ($k=0.12\text{W}/\text{m}^{\circ}\text{C}$). The heat transfer coefficient on the insulation surface is $35\text{W}/\text{m}^2\text{C}$. Determine the critical thickness of insulation in this case & the percentage change in the heat transfer rate if the critical thickness is used. Assuming that the temperature difference between the surface of the wire and surrounding air remains unchanged. **05**

Q.4 Attempt the following questions.

- a) Explain the following terms: **04**
 i) Solid angle.
 ii) Radiosity.
 iii) Irradiation.

- b) State Plank's law of radiation. Hence derive Wien's displacement law. **05**
- c) Determine the rate of heat loss by radiation from a steel tube of outside diameter 70 mm and 3 m long at the temperature of 227°C. If the tube is located in a square brick conduit of 0.3 m side and 27°C. Take $\varepsilon_{(Steel)} = 0.79$ & $\varepsilon_{(brick)} = 0.93$ **05**

Section – II

Q.5 Attempt the following question.

- a) Show by dimensional analysis, $Nu = f(Gr, Pr)$ for natural convection. **04**
- b) Explain with neat sketch velocity and thermal boundary layer. **05**
- c) The Crankcase of an I.C. Engine measuring 80cm × 20 cm may be idealized as a flat plate. The engine runs at 90 Km/hr & the crankcase is cooled by the air flowing past it at the same speed. Calculate the heat loss from the crank surface maintained at 85°C to the ambient air at 15 °C. Due to road induced vibration the boundary layer becomes turbulent from the leading edge itself. **05**
- The Properties of air at 50°C are:
 $K = 0.02824 \text{ W/m } ^\circ\text{C}$, $\gamma = 17.95 \times 10^{-6} \text{ m/s}^2$, $Pr = 0.698$
 Use
 $Nu = 0.036(Re)^{0.8}(Pr)^{0.333}$

Q.6 Attempt the following questions.

- a) Define Condensation and explain its types. **04**
- b) Draw typical pool boiling curve and explain various regimes of pool boiling. **05**
- c) A counter flow double pipe heat exchanger using hot water at the rate of 10500 kg/h. the steam enters the heat exchanger at 180°C & leaves at 130°C . The inlet & exit temperatures of water are 30°C and 80°C resp. if overall heat transfer coefficient from steam to water is 814 W/m²°C .Calculate the heat transfer area. What would be the increase in area if fluid flow were parallel. Take specific heat of water 4.187 KJ/Kg K. **05**

Q.7 Attempt the following questions.

- a) Explain Heat Pipe working and its applications. **04**
- b) Derive an expression for determining the LMTD of parallel flow heat exchanger. **05**
- c) A chemical having specific heat of 3.3 KJ/KgK flowing at the rate of 20000 Kg/hr. enters the parallel flow heat exchanger at 120°C. The flow rate of cooling water is 50000 Kg/hr having specific heat of 4.186 KJ/KgK with an inlet temperature 20°C. The heat transfer area is 10 m² and the overall heat transfer coefficient is 1050 W/m²K. **05**
- Find:
- The effectiveness of heat exchanger
 - The outlet temperature of water and chemical

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Draw neat-labelled diagrams wherever necessary.
- 4) Figures to right indicate full marks.
- 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) _____ is defined as "the discipline dealing with what is good & bad & with moral duty & obligation".
 - a) Rule
 - b) Organisation culture
 - c) Protocol
 - d) Ethics
- 2) _____ Managers are the real 'team manager' in grid type.
 - a) 1.9
 - b) 5.5
 - c) 9.1
 - d) 9.9
- 3) In _____ concept product enjoys the supreme importance.
 - a) Selling
 - b) Marketing
 - c) Manufacturing
 - d) Business
- 4) Close control, close supervision is advantage of _____.
 - a) Narrow span
 - b) Wide span
 - c) Close span
 - d) Open span
- 5) The responsibilities of the operations manager include _____.
 - a) Planning, organizing, staffing, procuring and reviewing
 - b) Forecasting, designing, planning, organizing, and controlling
 - c) Forecasting, designing operating, procuring, and reviewing
 - d) Planning, organizing, staffing, leading, and controlling
 - e) Designing & operating
- 6) Self esteem, status affiliation with others, affection those come under _____ needs.
 - a) Basic
 - b) Primary
 - c) Third level of
 - d) Secondary
- 7) _____ is ability of individual or group to induce or influence the beliefs or action of other person or group.
 - a) Power
 - b) Authority
 - c) Post
 - d) Leadership

- 8) The basic objective of quality control in any organisation is to _____.
a) Quality development, quality maintenance and quality improvement activities in organization
b) Achieve optimum cost
c) Achieve customer's satisfaction
d) Achieve all the above
- 9) Cost associated with defective products being shipped to the customers are called as _____.
a) Cost of internal failure
b) Total cost of failure
c) Rejection cost
d) Cost of external failure
- 10) For identification of vital few for the given data, the tool used is _____.
a) Cause-Effect diagram
b) Scatter diagram
c) Pareto Analysis
d) Check Sheet
- 11) Total quality management (TQM) mainly aims for _____.
a) Control for quality
b) Usefulness of product
c) Customer satisfaction
d) Cost control
- 12) The statistician who invented the control chart for use in industrial quality control was:
a) Deming
b) Taguchi
c) Pareto
d) Shewhart
e) None of the above
- 13) The method of accepting or rejecting the lot is known as _____.
a) Lot sampling
b) Acceptance sampling
c) Batch sampling
d) Quality control
- 14) In double sampling plan, second sample is taken when the number of defectives _____.
a) $>C1$ but $<C2$
b) $>C1$
c) $>C1$ and $C2$
d) $<C2$

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- Q.2** a) What are managerial skills and managerial roles? **05**
 b) Explain the financial management role, nature & functions of each department. **04**
- Q.3** a) What is planning? Explain advantages and disadvantages of planning? **05**
 b) What are the types of organizations? Explain Problems with organizational level. **05**
- Q.4** a) Define Leadership. Explain four extreme styles. **05**
 b) Discuss types of communication by taking suitable example. **04**
- Q.5 Write short note on (Any Three)** **09**
 a) Channel of distribution
 b) Social responsibilities in management.
 c) Methods of Departmentation
 d) Explain Maslow's theory
 e) Decision making

Section – II

- Q.6** a) What is meaning of quality of design and quality of conformance? Explain the factors affecting quality of design. **05**
 b) Differentiate between: Cost of quality & value of quality. **05**
- Q.7** a) How employee involvement affects organization performance? What are various ways to improve employee involvement? **05**
 b) List seven quality control tools. Explain with neat sketches Pareto analysis, Scatter diagram and cause and effect diagram. **04**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Draw neat-labelled diagrams wherever necessary.
- 4) Figures to right indicate full marks.
- 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) The basic objective of quality control in any organisation is to _____.
 - a) Quality development, quality maintenance and quality improvement activities in organization
 - b) Achieve optimum cost
 - c) Achieve customer's satisfaction
 - d) Achieve all the above
- 2) Cost associated with defective products being shipped to the customers are called as _____.
 - a) Cost of internal failure
 - b) Total cost of failure
 - c) Rejection cost
 - d) Cost of external failure
- 3) For identification of vital few for the given data, the tool used is _____.
 - a) Cause-Effect diagram
 - b) Scatter diagram
 - c) Pareto Analysis
 - d) Check Sheet
- 4) Total quality management (TQM) mainly aims for _____.
 - a) Control for quality
 - b) Usefulness of product
 - c) Customer satisfaction
 - d) Cost control
- 5) The statistician who invented the control chart for use in industrial quality control was:
 - a) Deming
 - b) Taguchi
 - c) Pareto
 - d) Shewhart
 - e) None of the above
- 6) The method of accepting or rejecting the lot is known as _____.
 - a) Lot sampling
 - b) Acceptance sampling
 - c) Batch sampling
 - d) Quality control
- 7) In double sampling plan, second sample is taken when the number of defectives _____.
 - a) $>C_1$ but $<C_2$
 - b) $>C_1$
 - c) $>C_1$ and C_2
 - d) $<C_2$

Seat No.	
----------	--

Set Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- Q.2** a) What are managerial skills and managerial roles? **05**
 b) Explain the financial management role, nature & functions of each department. **04**
- Q.3** a) What is planning? Explain advantages and disadvantages of planning? **05**
 b) What are the types of organizations? Explain Problems with organizational level. **05**
- Q.4** a) Define Leadership. Explain four extreme styles. **05**
 b) Discuss types of communication by taking suitable example. **04**
- Q.5 Write short note on (Any Three) 09**
 a) Channel of distribution
 b) Social responsibilities in management.
 c) Methods of Departmentation
 d) Explain Maslow's theory
 e) Decision making

Section – II

- Q.6** a) What is meaning of quality of design and quality of conformance? Explain the factors affecting quality of design. **05**
 b) Differentiate between: Cost of quality & value of quality. **05**
- Q.7** a) How employee involvement affects organization performance? What are various ways to improve employee involvement? **05**
 b) List seven quality control tools. Explain with neat sketches Pareto analysis, Scatter diagram and cause and effect diagram. **04**

- Q.8** a) A manufacturer purchases small bolts in cartons that usually contain several thousand bolts. Each shipment consists of a number of cartons. As a part of acceptance procedure for these bolts 400 bolts are selected at random from each carton and are subjected to visual inspection for certain defects. In shipment 10 cartons the respective percentage of defectives in the sample from each carton are 0, 0, 0.5, 0.75, 0, 2.0, 0.25, 0, 0.25 and 1.25. Does this shipment of bolts appear to exhibit statistical control with respect to the quality characteristics examined in the inspection? **05**
- b) Explain actual and ideal OC curve for a sampling plan. Also explain all concepts such as producer's risk, consumer's risk. **04**
- Q.9 Write short note on (Any Three) 09**
- a) Need of Environment management system
 - b) Supplier partnership
 - c) Appraisal costs and Prevention costs
 - d) X bar chart
 - e) Six Sigma.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Draw neat-labelled diagrams wherever necessary.
 4) Figures to right indicate full marks.
 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Total quality management (TQM) mainly aims for _____.
 a) Control for quality b) Usefulness of product
 c) Customer satisfaction d) Cost control
- 2) The statistician who invented the control chart for use in industrial quality control was:
 a) Deming b) Taguchi
 c) Pareto d) Shewhart
 e) None of the above
- 3) The method of accepting or rejecting the lot is known as _____.
 a) Lot sampling b) Acceptance sampling
 c) Batch sampling d) Quality control
- 4) In double sampling plan, second sample is taken when the number of defectives _____.
 a) $>C_1$ but $<C_2$ b) $>C_1$
 c) $>C_1$ and C_2 d) $<C_2$
- 5) _____ is defined as "the discipline dealing with what is good & bad & with moral duty & obligation".
 a) Rule b) Organisation culture
 c) Protocol d) Ethics
- 6) _____ Managers are the real 'team manager' in grid type.
 a) 1.9 b) 5.5
 c) 9.1 d) 9.9
- 7) In _____ concept product enjoys the supreme importance.
 a) Selling b) Marketing
 c) Manufacturing d) Business

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- Q.2** a) What are managerial skills and managerial roles? **05**
 b) Explain the financial management role, nature & functions of each department. **04**
- Q.3** a) What is planning? Explain advantages and disadvantages of planning? **05**
 b) What are the types of organizations? Explain Problems with organizational level. **05**
- Q.4** a) Define Leadership. Explain four extreme styles. **05**
 b) Discuss types of communication by taking suitable example. **04**
- Q.5 Write short note on (Any Three)** **09**
 a) Channel of distribution
 b) Social responsibilities in management.
 c) Methods of Departmentation
 d) Explain Maslow's theory
 e) Decision making

Section – II

- Q.6** a) What is meaning of quality of design and quality of conformance? Explain the factors affecting quality of design. **05**
 b) Differentiate between: Cost of quality & value of quality. **05**
- Q.7** a) How employee involvement affects organization performance? What are various ways to improve employee involvement? **05**
 b) List seven quality control tools. Explain with neat sketches Pareto analysis, Scatter diagram and cause and effect diagram. **04**

- Q.8** a) A manufacturer purchases small bolts in cartons that usually contain several thousand bolts. Each shipment consists of a number of cartons. As a part of acceptance procedure for these bolts 400 bolts are selected at random from each carton and are subjected to visual inspection for certain defects. In shipment 10 cartons the respective percentage of defectives in the sample from each carton are 0, 0, 0.5, 0.75, 0, 2.0, 0.25, 0, 0.25 and 1.25. Does this shipment of bolts appear to exhibit statistical control with respect to the quality characteristics examined in the inspection? **05**
- b) Explain actual and ideal OC curve for a sampling plan. Also explain all concepts such as producer's risk, consumer's risk. **04**
- Q.9 Write short note on (Any Three) 09**
- a) Need of Environment management system
 - b) Supplier partnership
 - c) Appraisal costs and Prevention costs
 - d) X bar chart
 - e) Six Sigma.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Draw neat-labelled diagrams wherever necessary.
- 4) Figures to right indicate full marks.
- 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Self esteem, status affiliation with others, affection those come under _____ needs.

a) Basic	b) Primary
c) Third level of	d) Secondary
- 2) _____ is ability of individual or group to induce or influence the beliefs or action of other person or group.

a) Power	b) Authority
c) Post	d) Leadership
- 3) The basic objective of quality control in any organisation is to _____.

a) Quality development, quality maintenance and quality improvement activities in organization
b) Achieve optimum cost
c) Achieve customer's satisfaction
d) Achieve all the above
- 4) Cost associated with defective products being shipped to the customers are called as _____.

a) Cost of internal failure	b) Total cost of failure
c) Rejection cost	d) Cost of external failure
- 5) For identification of vital few for the given data, the tool used is _____.

a) Cause-Effect diagram	b) Scatter diagram
c) Pareto Analysis	d) Check Sheet
- 6) Total quality management (TQM) mainly aims for _____.

a) Control for quality	b) Usefulness of product
c) Customer satisfaction	d) Cost control

- 7) The statistician who invented the control chart for use in industrial quality control was:
- a) Deming
 - b) Taguchi
 - c) Pareto
 - d) Shewhart
 - e) None of the above
- 8) The method of accepting or rejecting the lot is known as _____.
- a) Lot sampling
 - b) Acceptance sampling
 - c) Batch sampling
 - d) Quality control
- 9) In double sampling plan, second sample is taken when the number of defectives _____.
- a) $>C1$ but $<C2$
 - b) $>C1$
 - c) $>C1$ and $C2$
 - d) $<C2$
- 10) _____ is defined as “the discipline dealing with what is good & bad & with moral duty & obligation”.
- a) Rule
 - b) Organisation culture
 - c) Protocol
 - d) Ethics
- 11) _____ Managers are the real ‘team manager’ in grid type.
- a) 1.9
 - b) 5.5
 - c) 9.1
 - d) 9.9
- 12) In _____ concept product enjoys the supreme importance.
- a) Selling
 - b) Marketing
 - c) Manufacturing
 - d) Business
- 13) Close control, close supervision is advantage of _____.
- a) Narrow span
 - b) Wide span
 - c) Close span
 - d) Open span
- 14) The responsibilities of the operations manager include _____.
- a) Planning, organizing, staffing, procuring and reviewing
 - b) Forecasting, designing, planning, organizing, and controlling
 - c) Forecasting, designing operating, procuring, and reviewing
 - d) Planning, organizing, staffing, leading, and controlling
 - e) Designing & operating

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial & Quality Management (BTN02604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- Q.2** a) What are managerial skills and managerial roles? **05**
 b) Explain the financial management role, nature & functions of each department. **04**
- Q.3** a) What is planning? Explain advantages and disadvantages of planning? **05**
 b) What are the types of organizations? Explain Problems with organizational level. **05**
- Q.4** a) Define Leadership. Explain four extreme styles. **05**
 b) Discuss types of communication by taking suitable example. **04**
- Q.5 Write short note on (Any Three) 09**
 a) Channel of distribution
 b) Social responsibilities in management.
 c) Methods of Departmentation
 d) Explain Maslow's theory
 e) Decision making

Section – II

- Q.6** a) What is meaning of quality of design and quality of conformance? Explain the factors affecting quality of design. **05**
 b) Differentiate between: Cost of quality & value of quality. **05**
- Q.7** a) How employee involvement affects organization performance? What are various ways to improve employee involvement? **05**
 b) List seven quality control tools. Explain with neat sketches Pareto analysis, Scatter diagram and cause and effect diagram. **04**

- Q.8** **a)** A manufacturer purchases small bolts in cartons that usually contain several thousand bolts. Each shipment consists of a number of cartons. As a part of acceptance procedure for these bolts 400 bolts are selected at random from each carton and are subjected to visual inspection for certain defects. In shipment 10 cartons the respective percentage of defectives in the sample from each carton are 0, 0, 0.5, 0.75, 0, 2.0, 0.25, 0, 0.25 and 1.25. Does this shipment of bolts appear to exhibit statistical control with respect to the quality characteristics examined in the inspection? **05**
- b)** Explain actual and ideal OC curve for a sampling plan. Also explain all concepts such as producer's risk, consumer's risk. **04**
- Q.9** **Write short note on (Any Three)** **09**
- a)** Need of Environment management system
 - b)** Supplier partnership
 - c)** Appraisal costs and Prevention costs
 - d)** X bar chart
 - e)** Six Sigma.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make Suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Project is a _____ endeavor.

a) Temporary	b) Permanent
c) Perpetual	d) None of the above
- 2) Which from the following represents the correct project cycle?

a) Planning → Initiating → Executing → Closing
b) Planning → Executing → Initiating → Closing
c) Initiating → Planning → Executing → Closing
d) Initiating → Executing → Planning → Closing
- 3) Which stage of project management life cycle requires the maximum time of completion _____.

a) Conceptualization	b) Planning
c) Execution	d) Estimation
- 4) What file extension is used for Microsoft Project files?

a) .mpp	b) .mpd
c) .mcm	d) .pct
- 5) Fill in the blank. There is _____ correlation between project complexity and project risk. Select one:

a) an unknown	b) a positive
c) no	d) a negative
- 6) The cash inflows and (outflows) associated with a project are as follows: At start (120000), Year 1: 40000, Year 2: 50000, Year 3: 60000, Residual Value (at the end of 3rd year): 20000. The payback period for this project would be:

a) 2 years and 3 months	b) 2 years and 6 months
c) 3 years	d) 2 years
- 7) Which of the following represents the estimated value of the work actually accomplished?

a) Earned value (EV)	b) Planned value (PV)
c) Actual cost (AC)	d) Cost variance (CV)

8) A company is considering investing surplus funds in a project. Calculate the NPV at 7 % discount rate for the following data:

Project	Year 0	Year 1	Year 2
A	(200)	200	200

- a) 161.60
 - b) 1.6160
 - c) 16.160
 - d) 200
- 9) From the following calculate critical Path Duration in days
Activity: 1-2 2-3 2-4 3-5 4-6 5-6
Duration: 3 4 3 3 2 2
- a) 13 days
 - b) 8 days
 - c) 11 days
 - d) 12 days
- 10) The probability of completing the project can be estimated based upon the _____.
- a) Uniform distribution curve
 - b) Exponential distribution curve
 - c) U-shaped distribution curve
 - d) Normal distribution curve
- 11) With respect to PERT and CPM, slack _____.
- a) is a task or subproject that must be completed
 - b) marks the start or completion of a task
 - c) is the latest time an activity can be started without delaying the entire project.
 - d) is the amount of time a task may be delayed without changing the overall project completion time.
- 12) Scheduling used to determine:
- a) overall project duration
 - b) project cost estimating
 - c) the project management plan
 - d) sub-contractor’s responsibilities
- 13) A communication management plan identifies the relevant information that should be communicated to:
- a) the project team
 - b) the project stakeholders
 - c) the project board
 - d) the project sponsor
- 14) For an activity in a CPM analysis, the early Finish time is 13 and the late Finish time is 13. Duration of activity is 6. Which of the following statements is true?
- a) The early start is 6
 - b) The duration of the activity is 13
 - c) The slack of this activity is 13
 - d) The activity is on the critical path

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Explain role of Project Manager. **05**
 b) Explain the phases of a project life cycle. **05**
 c) State various numerical/financial models used in project feasibility study. **04**
 Explain NPV.
- Q.3** a) Explain break even analysis with its importance in project management. **05**
 b) What are scoring models? Explain weighted scoring model in project selection. **05**
 c) Explain project feasibility studies. **04**
- Q.4** a) State the various project cost-estimating methods. Explain any one methods in detail. **05**
 b) What is risk management? Explain steps in risk management. **05**
 c) Write a short note on Monte Carlo Simulation. **04**

Section – II

- Q.5** a) Explain Purpose of Project Execution and Control. **05**
 b) An R & D project has a list of tasks to be performed whose time estimates are given in the Table as follows. **05**
 i) Draw the project network.
 ii) Find the critical path.

Activity i j	Activity Name	T ₀	t _m (in days)	t _p
1-2	A	4	6	8
1-3	B	2	3	10
1-4	C	6	8	16
2-4	D	1	2	3
3-4	E	6	7	8
3-5	F	6	7	14
4-6	G	3	5	7
4-7	H	4	11	12
5-7	I	2	4	6
6-7	J	2	9	10

- c) Explain CPM and PERT. How they are different from each other? **04**

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What is Project Controlling? Explain various steps in Project Control Process. | 05 |
| | b) Write a short note on Work Breakdown Structure (WBS) | 05 |
| | c) Explain Project Management Information System (PMIS) | 04 |
| Q.7 | a) Explain importance of Project Performance measurement. Explain Benefits and Challenges of Performance Measurement and Evaluation. | 05 |
| | b) Explain Resource levelling and smoothing with example. | 05 |
| | c) Write a short note on Use of MS Projects in Project Management. | 04 |

Seat No. []

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

- Instructions: 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Make Suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) A company is considering investing surplus funds in a project. Calculate the NPV at 7 % discount rate for the following data:

Table with 4 columns: Project, Year 0, Year 1, Year 2. Row 1: A, (200), 200, 200

- a) 161.60 b) 1.6160
c) 16.160 d) 200
2) From the following calculate critical Path Duration in days
Activity: 1-2 2-3 2-4 3-5 4-6 5-6
Duration: 3 4 3 3 2 2
a) 13 days b) 8 days
c) 11 days d) 12 days
3) The probability of completing the project can be estimated based upon the _____.
a) Uniform distribution curve b) Exponential distribution curve
c) U-shaped distribution curve d) Normal distribution curve
4) With respect to PERT and CPM, slack _____.
a) is a task or subproject that must be completed
b) marks the start or completion of a task
c) is the latest time an activity can be started without delaying the entire project.
d) is the amount of time a task may be delayed without changing the overall project completion time.
5) Scheduling used to determine:
a) overall project duration
b) project cost estimating
c) the project management plan
d) sub-contractor's responsibilities

- 6) A communication management plan identifies the relevant information that should be communicated to:
- a) the project team
 - b) the project stakeholders
 - c) the project board
 - d) the project sponsor
- 7) For an activity in a CPM analysis, the early Finish time is 13 and the late Finish time is 13. Duration of activity is 6. Which of the following statements is true?
- a) The early start is 6
 - b) The duration of the activity is 13
 - c) The slack of this activity is 13
 - d) The activity is on the critical path
- 8) Project is a _____ endeavor.
- a) Temporary
 - b) Permanent
 - c) Perpetual
 - d) None of the above
- 9) Which from the following represents the correct project cycle?
- a) Planning → Initiating → Executing → Closing
 - b) Planning → Executing → Initiating → Closing
 - c) Initiating → Planning → Executing → Closing
 - d) Initiating → Executing → Planning → Closing
- 10) Which stage of project management life cycle requires the maximum time of completion _____.
- a) Conceptualization
 - b) Planning
 - c) Execution
 - d) Estimation
- 11) What file extension is used for Microsoft Project files?
- a) .mpp
 - b) .mpd
 - c) .mcm
 - d) .pct
- 12) Fill in the blank. There is _____ correlation between project complexity and project risk. Select one:
- a) an unknown
 - b) a positive
 - c) no
 - d) a negative
- 13) The cash inflows and (outflows) associated with a project are as follows: At start (120000), Year 1: 40000, Year 2: 50000, Year 3: 60000, Residual Value (at the end of 3rd year): 20000. The payback period for this project would be:
- a) 2 years and 3 months
 - b) 2 years and 6 months
 - c) 3 years
 - d) 2 years
- 14) Which of the following represents the estimated value of the work actually accomplished?
- a) Earned value (EV)
 - b) Planned value (PV)
 - c) Actual cost (AC)
 - d) Cost variance (CV)

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Explain role of Project Manager. **05**
 b) Explain the phases of a project life cycle. **05**
 c) State various numerical/financial models used in project feasibility study. **04**
 Explain NPV.
- Q.3** a) Explain break even analysis with its importance in project management. **05**
 b) What are scoring models? Explain weighted scoring model in project selection. **05**
 c) Explain project feasibility studies. **04**
- Q.4** a) State the various project cost-estimating methods. Explain any one methods in detail. **05**
 b) What is risk management? Explain steps in risk management. **05**
 c) Write a short note on Monte Carlo Simulation. **04**

Section – II

- Q.5** a) Explain Purpose of Project Execution and Control. **05**
 b) An R & D project has a list of tasks to be performed whose time estimates are given in the Table as follows. **05**
 i) Draw the project network.
 ii) Find the critical path.

Activity i j	Activity Name	T ₀	t _m (in days)	t _p
1-2	A	4	6	8
1-3	B	2	3	10
1-4	C	6	8	16
2-4	D	1	2	3
3-4	E	6	7	8
3-5	F	6	7	14
4-6	G	3	5	7
4-7	H	4	11	12
5-7	I	2	4	6
6-7	J	2	9	10

- c) Explain CPM and PERT. How they are different from each other? **04**

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What is Project Controlling? Explain various steps in Project Control Process. | 05 |
| | b) Write a short note on Work Breakdown Structure (WBS) | 05 |
| | c) Explain Project Management Information System (PMIS) | 04 |
| | | |
| Q.7 | a) Explain importance of Project Performance measurement. Explain Benefits and Challenges of Performance Measurement and Evaluation. | 05 |
| | b) Explain Resource levelling and smoothing with example. | 05 |
| | c) Write a short note on Use of MS Projects in Project Management. | 04 |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make Suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) With respect to PERT and CPM, slack _____.
 - a) is a task or subproject that must be completed
 - b) marks the start or completion of a task
 - c) is the latest time an activity can be started without delaying the entire project.
 - d) is the amount of time a task may be delayed without changing the overall project completion time.
- 2) Scheduling used to determine:
 - a) overall project duration
 - b) project cost estimating
 - c) the project management plan
 - d) sub-contractor's responsibilities
- 3) A communication management plan identifies the relevant information that should be communicated to:

a) the project team	b) the project stakeholders
c) the project board	d) the project sponsor
- 4) For an activity in a CPM analysis, the early Finish time is 13 and the late Finish time is 13. Duration of activity is 6. Which of the following statements is true?
 - a) The early start is 6
 - b) The duration of the activity is 13
 - c) The slack of this activity is 13
 - d) The activity is on the critical path
- 5) Project is a _____ endeavor.

a) Temporary	b) Permanent
c) Perpetual	d) None of the above
- 6) Which from the following represents the correct project cycle?
 - a) Planning → Initiating → Executing → Closing
 - b) Planning → Executing → Initiating → Closing
 - c) Initiating → Planning → Executing → Closing
 - d) Initiating → Executing → Planning → Closing

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Explain role of Project Manager. **05**
 b) Explain the phases of a project life cycle. **05**
 c) State various numerical/financial models used in project feasibility study. **04**
 Explain NPV.
- Q.3** a) Explain break even analysis with its importance in project management. **05**
 b) What are scoring models? Explain weighted scoring model in project selection. **05**
 c) Explain project feasibility studies. **04**
- Q.4** a) State the various project cost-estimating methods. Explain any one methods in detail. **05**
 b) What is risk management? Explain steps in risk management. **05**
 c) Write a short note on Monte Carlo Simulation. **04**

Section – II

- Q.5** a) Explain Purpose of Project Execution and Control. **05**
 b) An R & D project has a list of tasks to be performed whose time estimates are given in the Table as follows. **05**
 i) Draw the project network.
 ii) Find the critical path.

Activity i j	Activity Name	T ₀	t _m (in days)	t _p
1-2	A	4	6	8
1-3	B	2	3	10
1-4	C	6	8	16
2-4	D	1	2	3
3-4	E	6	7	8
3-5	F	6	7	14
4-6	G	3	5	7
4-7	H	4	11	12
5-7	I	2	4	6
6-7	J	2	9	10

- c) Explain CPM and PERT. How they are different from each other? **04**

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) What is Project Controlling? Explain various steps in Project Control Process. | 05 |
| | b) Write a short note on Work Breakdown Structure (WBS) | 05 |
| | c) Explain Project Management Information System (PMIS) | 04 |
| Q.7 | a) Explain importance of Project Performance measurement. Explain Benefits and Challenges of Performance Measurement and Evaluation. | 05 |
| | b) Explain Resource levelling and smoothing with example. | 05 |
| | c) Write a short note on Use of MS Projects in Project Management. | 04 |

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make Suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) The cash inflows and (outflows) associated with a project are as follows: At start (120000), Year 1: 40000, Year 2: 50000, Year 3: 60000, Residual Value (at the end of 3rd year): 20000. The payback period for this project would be:
 a) 2 years and 3 months b) 2 years and 6 months
 c) 3 years d) 2 years
- 2) Which of the following represents the estimated value of the work actually accomplished?
 a) Earned value (EV) b) Planned value (PV)
 c) Actual cost (AC) d) Cost variance (CV)
- 3) A company is considering investing surplus funds in a project. Calculate the NPV at 7 % discount rate for the following data:

Project	Year 0	Year 1	Year 2
A	(200)	200	200

- a) 161.60 b) 1.6160
 c) 16.160 d) 200
- 4) From the *following calculate critical Path Duration in days*
 Activity: 1-2 2-3 2-4 3-5 4-6 5-6
 Duration: 3 4 3 3 2 2
 a) 13 days b) 8 days
 c) 11 days d) 12 days
- 5) The probability of completing the project can be estimated based upon the _____.
 a) Uniform distribution curve b) Exponential distribution curve
 c) U-shaped distribution curve d) Normal distribution curve

- 6) With respect to PERT and CPM, slack _____.
a) is a task or subproject that must be completed
b) marks the start or completion of a task
c) is the latest time an activity can be started without delaying the entire project.
d) is the amount of time a task may be delayed without changing the overall project completion time.
- 7) Scheduling used to determine:
a) overall project duration
b) project cost estimating
c) the project management plan
d) sub-contractor's responsibilities
- 8) A communication management plan identifies the relevant information that should be communicated to:
a) the project team
b) the project stakeholders
c) the project board
d) the project sponsor
- 9) For an activity in a CPM analysis, the early Finish time is 13 and the late Finish time is 13. Duration of activity is 6. Which of the following statements is true?
a) The early start is 6
b) The duration of the activity is 13
c) The slack of this activity is 13
d) The activity is on the critical path
- 10) Project is a _____ endeavor.
a) Temporary
b) Permanent
c) Perpetual
d) None of the above
- 11) Which from the following represents the correct project cycle?
a) Planning → Initiating → Executing → Closing
b) Planning → Executing → Initiating → Closing
c) Initiating → Planning → Executing → Closing
d) Initiating → Executing → Planning → Closing
- 12) Which stage of project management life cycle requires the maximum time of completion _____.
a) Conceptualization
b) Planning
c) Execution
d) Estimation
- 13) What file extension is used for Microsoft Project files?
a) .mpp
b) .mpd
c) .mcm
d) .pct
- 14) Fill in the blank. There is _____ correlation between project complexity and project risk. Select one:
a) an unknown
b) a positive
c) no
d) a negative

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Project Management (BTN02608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Explain role of Project Manager. **05**
 b) Explain the phases of a project life cycle. **05**
 c) State various numerical/financial models used in project feasibility study. **04**
 Explain NPV.
- Q.3** a) Explain break even analysis with its importance in project management. **05**
 b) What are scoring models? Explain weighted scoring model in project selection. **05**
 c) Explain project feasibility studies. **04**
- Q.4** a) State the various project cost-estimating methods. Explain any one methods in detail. **05**
 b) What is risk management? Explain steps in risk management. **05**
 c) Write a short note on Monte Carlo Simulation. **04**

Section – II

- Q.5** a) Explain Purpose of Project Execution and Control. **05**
 b) An R & D project has a list of tasks to be performed whose time estimates are given in the Table as follows. **05**
 i) Draw the project network.
 ii) Find the critical path.

Activity i j	Activity Name	T_0	t_m (in days)	t_p
1-2	A	4	6	8
1-3	B	2	3	10
1-4	C	6	8	16
2-4	D	1	2	3
3-4	E	6	7	8
3-5	F	6	7	14
4-6	G	3	5	7
4-7	H	4	11	12
5-7	I	2	4	6
6-7	J	2	9	10

- c) Explain CPM and PERT. How they are different from each other? **04**

- | | | | |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | a) | What is Project Controlling? Explain various steps in Project Control Process. | 05 |
| | b) | Write a short note on Work Breakdown Structure (WBS) | 05 |
| | c) | Explain Project Management Information System (PMIS) | 04 |
| Q.7 | a) | Explain importance of Project Performance measurement. Explain Benefits and Challenges of Performance Measurement and Evaluation. | 05 |
| | b) | Explain Resource levelling and smoothing with example. | 05 |
| | c) | Write a short note on Use of MS Projects in Project Management. | 04 |

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicate full marks.
 4) Make suitable assumption if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) _____ is a three-dimensional area enclosed by a surface.
 - a) Form
 - b) Shape
 - c) Line
 - d) None of the above
- 2) The necessity to know the environment in which the product will be used is termed as _____.
 - a) Design Situation
 - b) Design Analysis
 - c) Aesthetics
 - d) Ergonomics
- 3) The purpose of _____ is to generate large number of ideas.
 - a) Idea Screening
 - b) Brain Storming
 - c) Concept development and Testing
 - d) Marketing Strategy Development
- 4) How can contrasting colors and clear labeling on machine controls enhance user-friendliness?
 - a) They add unnecessary complexity.
 - b) They make the machine less visible.
 - c) They improve user recognition and ease of operation.
 - d) They have no impact on usability.
- 5) What role does the psychology of scene play in industrial product design?
 - a) It has no relevance to product design.
 - b) It helps create appealing visuals.
 - c) It influences user perceptions and emotions.
 - d) It affects production costs.
- 6) How can the careful selection of materials and textures enhance the aesthetics of a product?
 - a) It doesn't impact aesthetics.
 - b) It increases manufacturing costs.
 - c) It can add depth, contrast, and tactile appeal to the design
 - d) It primarily affects the product's weight

- 7) What does the term "contrast" signify in aesthetic design?
- a) Making all elements in a design look the same
 - b) Using similar colours and shapes
 - c) The closeness of different elements to create visual interest
 - d) Achieving perfect symmetry in design
- 8) _____ helps in establishing the interchangeability of products.
- a) Standardization
 - b) Simplification
 - c) Diversification
 - d) Specialization
- 9) Consumer needs and requirements are known as _____ in QFD methodology.
- a) Consumer preferences
 - b) Voice of the customer
 - c) Expectations
 - d) Variety of need
- 10) The design for environment is essentially due to _____.
- a) Customer Demand
 - b) Government Laws
 - c) ISO Requirement
 - d) All of the above
- 11) Which of the following is (are) recommendation (s) of design for assembly?
- a) Design parts with self-locating features
 - b) Maximize the fasteners
 - c) Use modular design
 - d) Both A and C
- 12) The cost reduction technique in comparison to the worth of a product is known as _____.
- a) Reverse engineering
 - b) Value engineering
 - c) Material engineering
 - d) Quality engineering
- 13) _____ is the first step in finalizing target specifications/requirements of a product.
- a) Identify customer needs
 - b) Benchmark competitive product specifications,
 - c) Establish target specifications,
 - d) Perform economic analysis,
- 14) Which of the following is (are) closely related to the INTRODUCTION stage of the product life cycle?
- a) Demand
 - b) Advertisement and promotion
 - c) Both A and B
 - d) None of these

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 2) Make suitable assumptions if necessary and state it clearly.
 3) Figures to right indicates full marks.

Section – I

- Q.2 Attempt any two. 14**
- a) Identify and provide concise discussions on the Human factors influencing the design of industrial products.
 - b) Elaborate on how setting specifications and market requirements play a role in product design interpretation.
 - c) Create an ergonomic illustration of a wheelchair with accurate labeling.
- Q.3 Attempt any two. 14**
- a) Outline the key stages of the Design Thinking process, and describe the purpose of each stage.
 - b) Elaborate on idea Generation and provide guidance on how to execute a brainstorming session.
 - c) Outline some key design strategies that facilitate ease of manufacturing, as recommended by DFM guidelines?
- Q.4 Write short note (Any Two) 14**
- a) Psychology of Colour.
 - b) Mechanics of seeing with suitable examples.
 - c) Concept of aesthetics with suitable examples.

Section – II

- Q.5 Attempt any two. 14**
- a) Provide a short overview of the Empathize stage in Design Thinking.
 - b) Analyse and enlist the anthropometric specifications required for designing a control panel of CNC machine with sketch.
 - c) What are Human Factors in Design?
- Q.6 Attempt any two. 14**
- a) Enlist a few popular Computer- Aided Product Design (CAPD) software tools and discuss their specific features and applications in product design.
 - b) Create a comparison chart showing advantages of Additive manufacturing over subtractive manufacturing.
 - c) Enlist the techniques of rapid prototyping and elaborate any one in details using sketch.

Q.7 Write short notes on (Any Two)

- a) Principles of Design**
- b) Design Thinking**
- c) Product Planning**

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicate full marks.
 4) Make suitable assumption if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.**14**

- 1) _____ helps in establishing the interchangeability of products.

a) Standardization	b) Simplification
c) Diversification	d) Specialization
- 2) Consumer needs and requirements are known as _____ in QFD methodology.

a) Consumer preferences	b) Voice of the customer
c) Expectations	d) Variety of need
- 3) The design for environment is essentially due to _____.

a) Customer Demand	b) Government Laws
c) ISO Requirement	d) All of the above
- 4) Which of the following is (are) recommendation (s) of design for assembly?

a) Design parts with self-locating features	b) Maximize the fasteners
c) Use modular design	d) Both A and C
- 5) The cost reduction technique in comparison to the worth of a product is known as _____.

a) Reverse engineering	b) Value engineering
c) Material engineering	d) Quality engineering
- 6) _____ is the first step in finalizing target specifications/requirements of a product.

a) Identify customer needs	b) Benchmark competitive product specifications,
c) Establish target specifications,	d) Perform economic analysis,
- 7) Which of the following is (are) closely related to the INTRODUCTION stage of the product life cycle?

a) Demand	b) Advertisement and promotion
c) Both A and B	d) None of these

- 8) _____ is a three-dimensional area enclosed by a surface.
- a) Form
 - b) Shape
 - c) Line
 - d) None of the above
- 9) The necessity to know the environment in which the product will be used is termed as _____.
- a) Design Situation
 - b) Design Analysis
 - c) Aesthetics
 - d) Ergonomics
- 10) The purpose of _____ is to generate large number of ideas.
- a) Idea Screening
 - b) Brain Storming
 - c) Concept development and Testing
 - d) Marketing Strategy Development
- 11) How can contrasting colors and clear labeling on machine controls enhance user-friendliness?
- a) They add unnecessary complexity.
 - b) They make the machine less visible.
 - c) They improve user recognition and ease of operation.
 - d) They have no impact on usability.
- 12) What role does the psychology of scene play in industrial product design?
- a) It has no relevance to product design.
 - b) It helps create appealing visuals.
 - c) It influences user perceptions and emotions.
 - d) It affects production costs.
- 13) How can the careful selection of materials and textures enhance the aesthetics of a product?
- a) It doesn't impact aesthetics.
 - b) It increases manufacturing costs.
 - c) It can add depth, contrast, and tactile appeal to the design
 - d) It primarily affects the product's weight
- 14) What does the term "contrast" signify in aesthetic design?
- a) Making all elements in a design look the same
 - b) Using similar colours and shapes
 - c) The closeness of different elements to create visual interest
 - d) Achieving perfect symmetry in design

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 2) Make suitable assumptions if necessary and state it clearly.
 3) Figures to right indicates full marks.

Section – I

- Q.2 Attempt any two. 14**
- a) Identify and provide concise discussions on the Human factors influencing the design of industrial products.
 - b) Elaborate on how setting specifications and market requirements play a role in product design interpretation.
 - c) Create an ergonomic illustration of a wheelchair with accurate labeling.
- Q.3 Attempt any two. 14**
- a) Outline the key stages of the Design Thinking process, and describe the purpose of each stage.
 - b) Elaborate on idea Generation and provide guidance on how to execute a brainstorming session.
 - c) Outline some key design strategies that facilitate ease of manufacturing, as recommended by DFM guidelines?
- Q.4 Write short note (Any Two) 14**
- a) Psychology of Colour.
 - b) Mechanics of seeing with suitable examples.
 - c) Concept of aesthetics with suitable examples.

Section – II

- Q.5 Attempt any two. 14**
- a) Provide a short overview of the Empathize stage in Design Thinking.
 - b) Analyse and enlist the anthropometric specifications required for designing a control panel of CNC machine with sketch.
 - c) What are Human Factors in Design?
- Q.6 Attempt any two. 14**
- a) Enlist a few popular Computer- Aided Product Design (CAPD) software tools and discuss their specific features and applications in product design.
 - b) Create a comparison chart showing advantages of Additive manufacturing over subtractive manufacturing.
 - c) Enlist the techniques of rapid prototyping and elaborate any one in details using sketch.

Q.7 Write short notes on (Any Two)

- a) Principles of Design
- b) Design Thinking
- c) Product Planning

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicate full marks.
 4) Make suitable assumption if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.

14

- 1) Which of the following is (are) recommendation (s) of design for assembly?
 - a) Design parts with self-locating features
 - b) Maximize the fasteners
 - c) Use modular design
 - d) Both A and C

- 2) The cost reduction technique in comparison to the worth of a product is known as _____.
 - a) Reverse engineering
 - b) Value engineering
 - c) Material engineering
 - d) Quality engineering

- 3) _____ is the first step in finalizing target specifications/requirements of a product.
 - a) Identify customer needs
 - b) Benchmark competitive product specifications,
 - c) Establish target specifications,
 - d) Perform economic analysis,

- 4) Which of the following is (are) closely related to the INTRODUCTION stage of the product life cycle?
 - a) Demand
 - b) Advertisement and promotion
 - c) Both A and B
 - d) None of these

- 5) _____ is a three-dimensional area enclosed by a surface.
 - a) Form
 - b) Shape
 - c) Line
 - d) None of the above

- 6) The necessity to know the environment in which the product will be used is termed as _____.
 - a) Design Situation
 - b) Design Analysis
 - c) Aesthetics
 - d) Ergonomics

- 7) The purpose of _____ is to generate large number of ideas.
- Idea Screening
 - Brain Storming
 - Concept development and Testing
 - Marketing Strategy Development
- 8) How can contrasting colors and clear labeling on machine controls enhance user-friendliness?
- They add unnecessary complexity.
 - They make the machine less visible.
 - They improve user recognition and ease of operation.
 - They have no impact on usability.
- 9) What role does the psychology of scene play in industrial product design?
- It has no relevance to product design.
 - It helps create appealing visuals.
 - It influences user perceptions and emotions.
 - It affects production costs.
- 10) How can the careful selection of materials and textures enhance the aesthetics of a product?
- It doesn't impact aesthetics.
 - It increases manufacturing costs.
 - It can add depth, contrast, and tactile appeal to the design
 - It primarily affects the product's weight
- 11) What does the term "contrast" signify in aesthetic design?
- Making all elements in a design look the same
 - Using similar colours and shapes
 - The closeness of different elements to create visual interest
 - Achieving perfect symmetry in design
- 12) _____ helps in establishing the interchangeability of products.
- | | |
|--------------------|-------------------|
| a) Standardization | b) Simplification |
| c) Diversification | d) Specialization |
- 13) Consumer needs and requirements are known as _____ in QFD methodology.
- | | |
|-------------------------|--------------------------|
| a) Consumer preferences | b) Voice of the customer |
| c) Expectations | d) Variety of need |
- 14) The design for environment is essentially due to _____.
- | | |
|--------------------|---------------------|
| a) Customer Demand | b) Government Laws |
| c) ISO Requirement | d) All of the above |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 2) Make suitable assumptions if necessary and state it clearly.
 3) Figures to right indicates full marks.

Section – I

- Q.2 Attempt any two. 14**
- a) Identify and provide concise discussions on the Human factors influencing the design of industrial products.
 - b) Elaborate on how setting specifications and market requirements play a role in product design interpretation.
 - c) Create an ergonomic illustration of a wheelchair with accurate labeling.
- Q.3 Attempt any two. 14**
- a) Outline the key stages of the Design Thinking process, and describe the purpose of each stage.
 - b) Elaborate on idea Generation and provide guidance on how to execute a brainstorming session.
 - c) Outline some key design strategies that facilitate ease of manufacturing, as recommended by DFM guidelines?
- Q.4 Write short note (Any Two) 14**
- a) Psychology of Colour.
 - b) Mechanics of seeing with suitable examples.
 - c) Concept of aesthetics with suitable examples.

Section – II

- Q.5 Attempt any two. 14**
- a) Provide a short overview of the Empathize stage in Design Thinking.
 - b) Analyse and enlist the anthropometric specifications required for designing a control panel of CNC machine with sketch.
 - c) What are Human Factors in Design?
- Q.6 Attempt any two. 14**
- a) Enlist a few popular Computer- Aided Product Design (CAPD) software tools and discuss their specific features and applications in product design.
 - b) Create a comparison chart showing advantages of Additive manufacturing over subtractive manufacturing.
 - c) Enlist the techniques of rapid prototyping and elaborate any one in details using sketch.

Q.7 Write short notes on (Any Two)

- a) Principles of Design**
- b) Design Thinking**
- c) Product Planning**

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicate full marks.
 4) Make suitable assumption if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions.**14**

- 1) How can the careful selection of materials and textures enhance the aesthetics of a product?
 - a) It doesn't impact aesthetics.
 - b) It increases manufacturing costs.
 - c) It can add depth, contrast, and tactile appeal to the design
 - d) It primarily affects the product's weight
- 2) What does the term "contrast" signify in aesthetic design?
 - a) Making all elements in a design look the same
 - b) Using similar colours and shapes
 - c) The closeness of different elements to create visual interest
 - d) Achieving perfect symmetry in design
- 3) _____ helps in establishing the interchangeability of products.

a) Standardization	b) Simplification
c) Diversification	d) Specialization
- 4) Consumer needs and requirements are known as _____ in QFD methodology.

a) Consumer preferences	b) Voice of the customer
c) Expectations	d) Variety of need
- 5) The design for environment is essentially due to _____.

a) Customer Demand	b) Government Laws
c) ISO Requirement	d) All of the above
- 6) Which of the following is (are) recommendation (s) of design for assembly?
 - a) Design parts with self-locating features
 - b) Maximize the fasteners
 - c) Use modular design
 - d) Both A and C
- 7) The cost reduction technique in comparison to the worth of a product is known as _____.

a) Reverse engineering	b) Value engineering
c) Material engineering	d) Quality engineering

- 8) _____ is the first step in finalizing target specifications/requirements of a product.
- a) Identify customer needs
 - b) Benchmark competitive product specifications,
 - c) Establish target specifications,
 - d) Perform economic analysis,
- 9) Which of the following is (are) closely related to the INTRODUCTION stage of the product life cycle?
- a) Demand
 - b) Advertisement and promotion
 - c) Both A and B
 - d) None of these
- 10) _____ is a three-dimensional area enclosed by a surface.
- a) Form
 - b) Shape
 - c) Line
 - d) None of the above
- 11) The necessity to know the environment in which the product will be used is termed as _____.
- a) Design Situation
 - b) Design Analysis
 - c) Aesthetics
 - d) Ergonomics
- 12) The purpose of _____ is to generate large number of ideas.
- a) Idea Screening
 - b) Brain Storming
 - c) Concept development and Testing
 - d) Marketing Strategy Development
- 13) How can contrasting colors and clear labeling on machine controls enhance user-friendliness?
- a) They add unnecessary complexity.
 - b) They make the machine less visible.
 - c) They improve user recognition and ease of operation.
 - d) They have no impact on usability.
- 14) What role does the psychology of scene play in industrial product design?
- a) It has no relevance to product design.
 - b) It helps create appealing visuals.
 - c) It influences user perceptions and emotions.
 - d) It affects production costs.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Industrial Product Design (BTN02609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 2) Make suitable assumptions if necessary and state it clearly.
 3) Figures to right indicates full marks.

Section – I

- Q.2 Attempt any two. 14**
- a) Identify and provide concise discussions on the Human factors influencing the design of industrial products.
 - b) Elaborate on how setting specifications and market requirements play a role in product design interpretation.
 - c) Create an ergonomic illustration of a wheelchair with accurate labeling.
- Q.3 Attempt any two. 14**
- a) Outline the key stages of the Design Thinking process, and describe the purpose of each stage.
 - b) Elaborate on idea Generation and provide guidance on how to execute a brainstorming session.
 - c) Outline some key design strategies that facilitate ease of manufacturing, as recommended by DFM guidelines?
- Q.4 Write short note (Any Two) 14**
- a) Psychology of Colour.
 - b) Mechanics of seeing with suitable examples.
 - c) Concept of aesthetics with suitable examples.

Section – II

- Q.5 Attempt any two. 14**
- a) Provide a short overview of the Empathize stage in Design Thinking.
 - b) Analyse and enlist the anthropometric specifications required for designing a control panel of CNC machine with sketch.
 - c) What are Human Factors in Design?
- Q.6 Attempt any two. 14**
- a) Enlist a few popular Computer- Aided Product Design (CAPD) software tools and discuss their specific features and applications in product design.
 - b) Create a comparison chart showing advantages of Additive manufacturing over subtractive manufacturing.
 - c) Enlist the techniques of rapid prototyping and elaborate any one in details using sketch.

Q.7 Write short notes on (Any Two)

- a) Principles of Design**
- b) Design Thinking**
- c) Product Planning**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple Choice Questions (Each Question 1 marks) 14

- 1) In addition polymerization reaction the polymer is formed in a _____ step.
 - a) Single
 - b) Three
 - c) Double
 - d) None
- 2) Polymers can be very _____ to chemicals.
 - a) Resistant
 - b) Similar
 - c) Opposite
 - d) None
- 3) Which of the following is an additive used for saving base plastic material?
 - a) Fillers
 - b) Plasticizers
 - c) Pigments
 - d) None of these
- 4) _____ is the most of commonly used manufacturing process for the plastic component.
 - a) Injection molding
 - b) Blow Molding
 - c) Transfer molding
 - d) Relational molding
- 5) The Rotational Molding is _____ plastic forming process.
 - a) High Temperature
 - b) Low temperature, High pressure
 - c) Low pressure
 - d) High Temperature, Low pressure
- 6) For the more precise dimensional stability of Thermosets, _____ is used.
 - a) Transfer moulding
 - b) Compression moulding
 - c) Any moulding process
 - d) Calendering
- 7) In _____ welding method, the workpieces to be joined are irradiated with a steam of neutron.
 - a) Infrared
 - b) Hot gas
 - c) Nuclear
 - d) Heated tool
- 8) Materials having a _____ shrinkage allowance can be molded with close tolerance.
 - a) Low
 - b) Medium
 - c) High
 - d) None

- 9) The ratio of volume of loose plastic powder to the volume of moulding is known as _____.
a) Clamping force b) Density factor
c) Bulk factor d) None
- 10) The depth of loading chamber is _____.
a) Inversely proportional to projected area
b) Inversely proportional to change in volume of plastic material
c) Directly proportional to projected area
d) None of the above
- 11) The heat to be removed by cooling circuits depend on _____.
a) Specific heat of material
b) Injection temperature of material
c) Latent heat of material
d) All of the above
- 12) The properties of the polymer will also depend on the _____ available for Cooling.
a) Time b) Area
c) Peed d) Momentum
- 13) Epoxy resin is example of _____ plastic.
a) Thermoplastics b) Elastomers
c) Thermosetting d) None
- 14) It is the _____ operation that sets the shape of thermoplastics.
a) Heating b) Grinding
c) Cutting d) Cooling

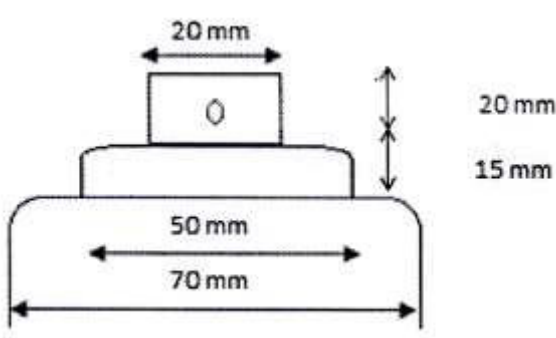
Seat
No.

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from Section I & II.
 2) Figures to the right indicate full marks.

- Q.2 Descriptive Questions (Any Three) 14**
(a & b compulsory attempt any one from remaining)
- a) Explain the process of Injection moulding with a neat diagram. **05**
 b) Explain biodegradable plastics and composite plastics with applications. **05**
 c) Explain the different tests carried out on plastic material explain any one of them in detail **04**
 d) Explain the additives used in the plastics. **04**
- Q.3 Descriptive Questions (Any Three) 14**
(a & c compulsory attempt any one from remaining)
- a) What are different types of injection moulds? Explain one of them with neat sketch. **05**
 b) Explain design rules related to Ribs for plastic parts. **04**
 c) Explain with neat sketch hot gas welding? **05**
 d) Explain various tolerances and allowances considered for plastics parts design. **04**
- Q.4 Descriptive Questions (Any Three) 14**
(b & c compulsory attempt any one from remaining)
- a) What is Polymerization process? Explain its types with examples. **05**
 b) A product has to be designed for an assembly of body of spray bottle. The body of spray bottle has the dimensions as shown in the figure below. The plastic body of spray bottle cap has to be designed to fit on the top of the bottle. The top end of the bottle is having diameter of 50 mm and its nozzle 20 mm
- 
- c) Write short note on **03**
 1) Design of corners
 2) Design of ribs
 3) Design for minimum wall thickness
- d) Explain various tolerances and allowances considered for plastics parts design. **05**

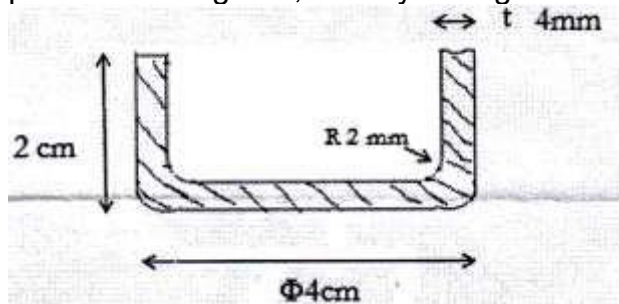
Section – II

Q.5 Descriptive Questions.

14

- a) Design a compression mold for the component shown in figure below which is made up of melamine material. Take $K=2$; compression pressure= 90 kg/cm^2 ; density = 1.7 gm/cm^3 .

06



- b) Explain main parts of compression mould with neat sketch.

04

- c) Explain types transfer moulds and their main parts with neat sketch.

04

Q.6 Descriptive Questions (Any Three)

14

(c & d compulsory attempt any one from remaining)

- a) Explain Ejection System for Injection mould with neat sketch.

04

- b) Explain cooling system for injection mould with neat sketch.

04

- c) Write short note on-

05

- 1) Design of loading chamber
- 2) Design of punch

- d) Find out the cooling time required for a mould with heaviest wall thickness 40 mm, for polypropylene material with following properties-

05

Thermal conductivity= 0.22 w/m K Density= 0.545 gm/cm^3 Specific heat = 1.68 kJ/kg k **Q.7 Descriptive questions.**

14

- a) Explain with neat sketch automation in transfer mould.

04

- b) Explain with neat sketch construction of correct cooling system.

04

- c) A plastic material with temperature 200°C is injected to a mould with 2000 kg/hr . the latent heat of fusion of material is 100 kJ/kg . The temperature of water supplied is 60°C and water coming out from mould is 90°C . Find the total weight of water supplied per hour. [$k=30.5$, $C_p=1.68 \text{ kJ/kg k}$]

06

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple Choice Questions (Each Question 1 marks)

14

- 1) Materials having a _____ shrinkage allowance can be molded with close tolerance.
 - a) Low
 - b) Medium
 - c) High
 - d) None
- 2) The ratio of volume of loose plastic powder to the volume of moulding is known as _____.
 - a) Clamping force
 - b) Density factor
 - c) Bulk factor
 - d) None
- 3) The depth of loading chamber is _____.
 - a) Inversely proportional to projected area
 - b) Inversely proportional to change in volume of plastic material
 - c) Directly proportional to projected area
 - d) None of the above
- 4) The heat to be removed by cooling circuits depend on _____.
 - a) Specific heat of material
 - b) Injection temperature of material
 - c) Latent heat of material
 - d) All of the above
- 5) The properties of the polymer will also depend on the _____ available for Cooling.
 - a) Time
 - b) Area
 - c) Peed
 - d) Momentum
- 6) Epoxy resin is example of _____ plastic.
 - a) Thermoplastics
 - b) Elastomers
 - c) Thermosetting
 - d) None
- 7) It is the _____ operation that sets the shape of thermoplastics.
 - a) Heating
 - b) Grinding
 - c) Cutting
 - d) Cooling

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from Section I & II.
 2) Figures to the right indicate full marks.

- Q.2 Descriptive Questions (Any Three) 14**
(a & b compulsory attempt any one from remaining)
- a) Explain the process of Injection moulding with a neat diagram. **05**
 b) Explain biodegradable plastics and composite plastics with applications. **05**
 c) Explain the different tests carried out on plastic material explain any one of them in detail **04**
 d) Explain the additives used in the plastics. **04**
- Q.3 Descriptive Questions (Any Three) 14**
(a & c compulsory attempt any one from remaining)
- a) What are different types of injection moulds? Explain one of them with neat sketch. **05**
 b) Explain design rules related to Ribs for plastic parts. **04**
 c) Explain with neat sketch hot gas welding? **05**
 d) Explain various tolerances and allowances considered for plastics parts design. **04**
- Q.4 Descriptive Questions (Any Three) 14**
(b & c compulsory attempt any one from remaining)
- a) What is Polymerization process? Explain its types with examples. **05**
 b) A product has to be designed for an assembly of body of spray bottle. The body of spray bottle has the dimensions as shown in the figure below. The plastic body of spray bottle cap has to be designed to fit on the top of the bottle. The top end of the bottle is having diameter of 50 mm and its nozzle 20 mm
- The diagram shows a cross-section of a spray bottle body. It consists of three main sections: a top nozzle section, a middle neck section, and a bottom body section. The nozzle has a diameter of 20 mm. The neck section has a diameter of 50 mm and a height of 20 mm. The body section has a diameter of 70 mm and a height of 15 mm. The top of the body section is rounded.
- c) Write short note on **03**
 1) Design of corners
 2) Design of ribs
 3) Design for minimum wall thickness
- d) Explain various tolerances and allowances considered for plastics parts design. **05**

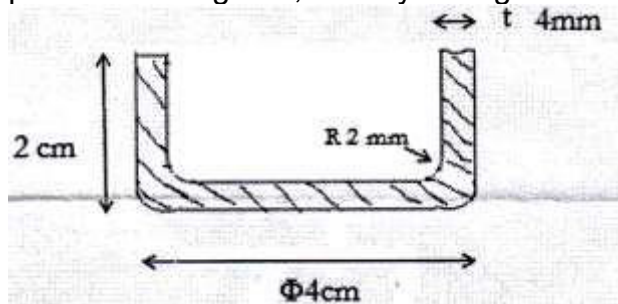
Section – II

Q.5 Descriptive Questions.

14

- a) Design a compression mold for the component shown in figure below which is made up of melamine material. Take $K=2$; compression pressure= 90 kg/cm^2 ; density = 1.7 gm/cm^3 .

06



- b) Explain main parts of compression mould with neat sketch.

04

- c) Explain types transfer moulds and their main parts with neat sketch.

04

Q.6 Descriptive Questions (Any Three)

14

(c & d compulsory attempt any one from remaining)

- a) Explain Ejection System for Injection mould with neat sketch.

04

- b) Explain cooling system for injection mould with neat sketch.

04

- c) Write short note on-

05

- 1) Design of loading chamber
- 2) Design of punch

- d) Find out the cooling time required for a mould with heaviest wall thickness 40 mm, for polypropylene material with following properties-

05

Thermal conductivity= 0.22 w/m K Density= 0.545 gm/cm^3 Specific heat = 1.68 kJ/kg k **Q.7 Descriptive questions.**

14

- a) Explain with neat sketch automation in transfer mould.

04

- b) Explain with neat sketch construction of correct cooling system.

04

- c) A plastic material with temperature 200°C is injected to a mould with 2000 kg/hr . the latent heat of fusion of material is 100 kJ/kg . The temperature of water supplied is 60°C and water coming out from mould is 90°C . Find the total weight of water supplied per hour. [$k=30.5$, $C_p=1.68 \text{ kJ/kg k}$]

06

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple Choice Questions (Each Question 1 marks)

14

- 1) The heat to be removed by cooling circuits depend on _____.
 a) Specific heat of material
 b) Injection temperature of material
 c) Latent heat of material
 d) All of the above
- 2) The properties of the polymer will also depend on the _____ available for Cooling.
 a) Time
 b) Area
 c) Peed
 d) Momentum
- 3) Epoxy resin is example of _____ plastic.
 a) Thermoplastics
 b) Elastomers
 c) Thermosetting
 d) None
- 4) It is the _____ operation that sets the shape of thermoplastics.
 a) Heating
 b) Grinding
 c) Cutting
 d) Cooling
- 5) In addition polymerization reaction the polymer is formed in a _____ step.
 a) Single
 b) Three
 c) Double
 d) None
- 6) Polymers can be very _____ to chemicals.
 a) Resistant
 b) Similar
 c) Opposite
 d) None
- 7) Which of the following is an additive used for saving base plastic material?
 a) Fillers
 b) Plasticizers
 c) Pigments
 d) None of these
- 8) _____ is the most of commonly used manufacturing process for the plastic component.
 a) Injection molding
 b) Blow Molding
 c) Transfer molding
 d) Relational molding

- 9) The Rotational Molding is _____ plastic forming process.
- a) High Temperature
 - b) Low temperature, High pressure
 - c) Low pressure
 - d) High Temperature, Low pressure
- 10) For the more precise dimensional stability of Thermosets, _____ is used.
- a) Transfer moulding
 - b) Compression moulding
 - c) Any moulding process
 - d) Calendering
- 11) In _____ welding method, the workpieces to be joined are irradiated with a stream of neutron.
- a) Infrared
 - b) Hot gas
 - c) Nuclear
 - d) Heated tool
- 12) Materials having a _____ shrinkage allowance can be molded with close tolerance.
- a) Low
 - b) Medium
 - c) High
 - d) None
- 13) The ratio of volume of loose plastic powder to the volume of moulding is known as _____.
- a) Clamping force
 - b) Density factor
 - c) Bulk factor
 - d) None
- 14) The depth of loading chamber is _____.
- a) Inversely proportional to projected area
 - b) Inversely proportional to change in volume of plastic material
 - c) Directly proportional to projected area
 - d) None of the above

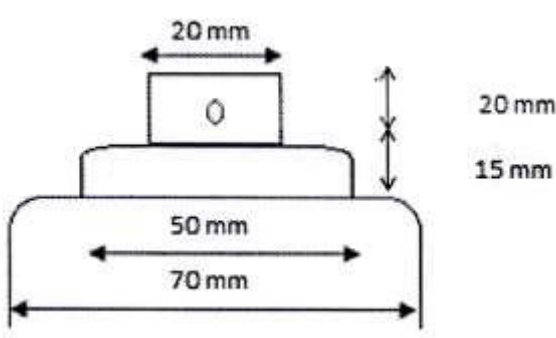
Seat
No.

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from Section I & II.
 2) Figures to the right indicate full marks.

- Q.2 Descriptive Questions (Any Three) 14**
(a & b compulsory attempt any one from remaining)
- a) Explain the process of Injection moulding with a neat diagram. **05**
 b) Explain biodegradable plastics and composite plastics with applications. **05**
 c) Explain the different tests carried out on plastic material explain any one of them in detail **04**
 d) Explain the additives used in the plastics. **04**
- Q.3 Descriptive Questions (Any Three) 14**
(a & c compulsory attempt any one from remaining)
- a) What are different types of injection moulds? Explain one of them with neat sketch. **05**
 b) Explain design rules related to Ribs for plastic parts. **04**
 c) Explain with neat sketch hot gas welding? **05**
 d) Explain various tolerances and allowances considered for plastics parts design. **04**
- Q.4 Descriptive Questions (Any Three) 14**
(b & c compulsory attempt any one from remaining)
- a) What is Polymerization process? Explain its types with examples. **05**
 b) A product has to be designed for an assembly of body of spray bottle. The body of spray bottle has the dimensions as shown in the figure below. The plastic body of spray bottle cap has to be designed to fit on the top of the bottle. The top end of the bottle is having diameter of 50 mm and its nozzle 20 mm
- 
- c) Write short note on **03**
 1) Design of corners
 2) Design of ribs
 3) Design for minimum wall thickness
- d) Explain various tolerances and allowances considered for plastics parts design. **05**

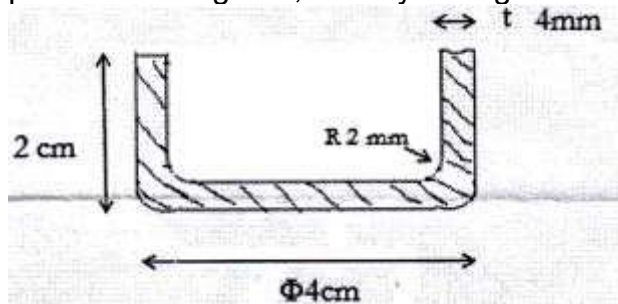
Section – II

Q.5 Descriptive Questions.

14

- a) Design a compression mold for the component shown in figure below which is made up of melamine material. Take $K=2$; compression pressure= 90 kg/cm^2 ; density = 1.7 gm/cm^3 .

06



- b) Explain main parts of compression mould with neat sketch.

04

- c) Explain types transfer moulds and their main parts with neat sketch.

04

Q.6 Descriptive Questions (Any Three)

14

(c & d compulsory attempt any one from remaining)

- a) Explain Ejection System for Injection mould with neat sketch.

04

- b) Explain cooling system for injection mould with neat sketch.

04

- c) Write short note on-

05

- 1) Design of loading chamber
- 2) Design of punch

- d) Find out the cooling time required for a mould with heaviest wall thickness 40 mm, for polypropylene material with following properties-

05

Thermal conductivity= 0.22 w/m K Density= 0.545 gm/cm^3 Specific heat = 1.68 kJ/kg k **Q.7 Descriptive questions.**

14

- a) Explain with neat sketch automation in transfer mould.

04

- b) Explain with neat sketch construction of correct cooling system.

04

- c) A plastic material with temperature 200°C is injected to a mould with 2000 kg/hr . the latent heat of fusion of material is 100 kJ/kg . The temperature of water supplied is 60°C and water coming out from mould is 90°C . Find the total weight of water supplied per hour. [$k=30.5$, $C_p=1.68 \text{ kJ/kg k}$]

06

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple Choice Questions (Each Question 1 marks)

14

- 1) For the more precise dimensional stability of Thermosets, _____ is used.
 - a) Transfer moulding
 - b) Compression moulding
 - c) Any moulding process
 - d) Calendering
- 2) In _____ welding method, the workpieces to be joined are irradiated with a steam of neutron.
 - a) Infrared
 - b) Hot gas
 - c) Nuclear
 - d) Heated tool
- 3) Materials having a _____ shrinkage allowance can be molded with close tolerance.
 - a) Low
 - b) Medium
 - c) High
 - d) None
- 4) The ratio of volume of loose plastic powder to the volume of moulding is known as _____.
 - a) Clamping force
 - b) Density factor
 - c) Bulk factor
 - d) None
- 5) The depth of loading chamber is _____.
 - a) Inversely proportional to projected area
 - b) Inversely proportional to change in volume of plastic material
 - c) Directly proportional to projected area
 - d) None of the above
- 6) The heat to be removed by cooling circuits depend on _____.
 - a) Specific heat of material
 - b) Injection temperature of material
 - c) Latent heat of material
 - d) All of the above
- 7) The properties of the polymer will also depend on the _____ available for Cooling.
 - a) Time
 - b) Area
 - c) Peed
 - d) Momentum

- 8) Epoxy resin is example of _____ plastic.
a) Thermoplastics b) Elastomers
c) Thermosetting d) None
- 9) It is the _____ operation that sets the shape of thermoplastics.
a) Heating b) Grinding
c) Cutting d) Cooling
- 10) In addition polymerization reaction the polymer is formed in a _____ step.
a) Single b) Three
c) Double d) None
- 11) Polymers can be very _____ to chemicals.
a) Resistant b) Similar
c) Opposite d) None
- 12) Which of the following is an additive used for saving base plastic material?
a) Fillers b) Plasticizers
c) Pigments d) None of these
- 13) _____ is the most of commonly used manufacturing process for the plastic component.
a) Injection molding b) Blow Molding
c) Transfer molding d) Relational molding
- 14) The Rotational Molding is _____ plastic forming process.
a) High Temperature
b) Low temperature, High pressure
c) Low pressure
d) High Temperature, Low pressure

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Plastic Engineering (BTN02610)

Day & Date: Friday 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from Section I & II.
 2) Figures to the right indicate full marks.

- Q.2 Descriptive Questions (Any Three) 14**
(a & b compulsory attempt any one from remaining)
- a) Explain the process of Injection moulding with a neat diagram. **05**
 b) Explain biodegradable plastics and composite plastics with applications. **05**
 c) Explain the different tests carried out on plastic material explain any one of them in detail **04**
 d) Explain the additives used in the plastics. **04**
- Q.3 Descriptive Questions (Any Three) 14**
(a & c compulsory attempt any one from remaining)
- a) What are different types of injection moulds? Explain one of them with neat sketch. **05**
 b) Explain design rules related to Ribs for plastic parts. **04**
 c) Explain with neat sketch hot gas welding? **05**
 d) Explain various tolerances and allowances considered for plastics parts design. **04**
- Q.4 Descriptive Questions (Any Three) 14**
(b & c compulsory attempt any one from remaining)
- a) What is Polymerization process? Explain its types with examples. **05**
 b) A product has to be designed for an assembly of body of spray bottle. The body of spray bottle has the dimensions as shown in the figure below. The plastic body of spray bottle cap has to be designed to fit on the top of the bottle. The top end of the bottle is having diameter of 50 mm and its nozzle 20 mm
-
- c) Write short note on **03**
 1) Design of corners
 2) Design of ribs
 3) Design for minimum wall thickness
- d) Explain various tolerances and allowances considered for plastics parts design. **05**

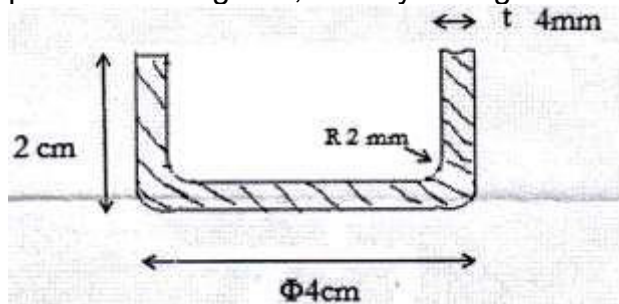
Section – II

Q.5 Descriptive Questions.

14

- a) Design a compression mold for the component shown in figure below which is made up of melamine material. Take $K=2$; compression pressure= 90 kg/cm^2 ; density = 1.7 gm/cm^3 .

06



- b) Explain main parts of compression mould with neat sketch.

04

- c) Explain types transfer moulds and their main parts with neat sketch.

04

Q.6 Descriptive Questions (Any Three)

14

(c & d compulsory attempt any one from remaining)

- a) Explain Ejection System for Injection mould with neat sketch.

04

- b) Explain cooling system for injection mould with neat sketch.

04

- c) Write short note on-

05

- 1) Design of loading chamber
- 2) Design of punch

- d) Find out the cooling time required for a mould with heaviest wall thickness 40 mm, for polypropylene material with following properties-

05

Thermal conductivity= 0.22 w/m K

Density= 0.545 gm/cm^3

Specific heat = 1.68 kJ/kg k

Q.7 Descriptive questions.

14

- a) Explain with neat sketch automation in transfer mould.

04

- b) Explain with neat sketch construction of correct cooling system.

04

- c) A plastic material with temperature 200°C is injected to a mould with 2000 kg/hr . the latent heat of fusion of material is 100 kJ/kg . The temperature of water supplied is 60°C and water coming out from mould is 90°C . Find the total weight of water supplied per hour. [$k=30.5$, $C_p=1.68 \text{ kJ/kg k}$]

06

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the size of ballast used in points and crossings under the Indian railways?

a) 10 mm	b) 40 mm
c) 25 mm	d) 5 mm
- 2) What is the reason of premature failure of rails?

a) Inherent defects in metal	b) Tilting of rails
c) Change in gauge width	d) Loose ballast
- 3) Why is it necessary for the sleepers to act as an elastic structure?
 - a) To absorb the vibrations of moving loads
 - b) To make it cheap
 - c) It is the material limitation
 - d) To keep them intact
- 4) Why the sleepers are closely spaced near the joints?

a) Because of weakness of joints	b) Because of coning of wheels
c) Because of tilting of rails	d) Because of more load at joints
- 5) Which of the following types of sleepers have the maximum service life?

a) Wooden	b) Steel
c) Cast iron	d) Concrete
- 6) Which type of sleeper has the maximum creep?

a) Wooden	b) Concrete
c) Steel	d) Cast iron
- 7) Railway passenger coaches are manufactured at _____.

a) Varanasi	b) Chittaranjan
c) Peranbur	d) Kolkata
- 8) Weight of the engine is categorized in _____.

a) sprung mass	b) unsprung mass
c) non-sprung mass	d) dummy mass

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks
3) Assume suitable data if required

Section – I

- Q.2** a) Explain with neat sketch fundamental functional principles of vehicle running in curves. **07**
b) Describe the term derailment of vehicle through displacement of track. **07**
- Q.3** a) Explain the causes of derailment of vehicle and state how to prevent it. **07**
b) Write short note on comparison of the characteristics of railway systems. **07**
- Q.4** a) Explain bogies with creep controlled wheel sets. **07**
b) With neat sketch explain bogies with self steering wheel sets. **07**

Section – II

- Q.5** a) Describe the following terms **07**
i) Acceleration forces
ii) Braking forces
b) Explain vertical wheel load due to residual centrifugal force. **07**
- Q.6** a) Define temperature force. Explain the effects of temperature forces on track. **07**
b) Explain the with neat sketch transversal cross wind forces acting on track. Also state how to avoid it. **07**
- Q.7** a) Explain the total vertical load acting on the track. **07**
b) Explain the following terms **07**
i) Creep forces when vehicle running on straight path
ii) Creep forces when vehicle running in curves

- 9) What is the reason of premature failure of rails?
a) Inherent defects in metal b) Tilting of rails
c) Change in gauge width d) Loose ballast
- 10) Why is it necessary for the sleepers to act as an elastic structure?
a) To absorb the vibrations of moving loads
b) To make it cheap
c) It is the material limitation
d) To keep them intact
- 11) Why the sleepers are closely spaced near the joints?
a) Because of weakness of joints b) Because of coning of wheels
c) Because of tilting of rails d) Because of more load at joints
- 12) Which of the following types of sleepers have the maximum service life?
a) Wooden b) Steel
c) Cast iron d) Concrete
- 13) Which type of sleeper has the maximum creep?
a) Wooden b) Concrete
c) Steel d) Cast iron
- 14) Railway passenger coaches are manufactured at _____.
a) Varanasi b) Chittaranjan
c) Peranbur d) Kolkata

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks
3) Assume suitable data if required

Section – I

- Q.2** a) Explain with neat sketch fundamental functional principles of vehicle running in curves. **07**
b) Describe the term derailment of vehicle through displacement of track. **07**
- Q.3** a) Explain the causes of derailment of vehicle and state how to prevent it. **07**
b) Write short note on comparison of the characteristics of railway systems. **07**
- Q.4** a) Explain bogies with creep controlled wheel sets. **07**
b) With neat sketch explain bogies with self steering wheel sets. **07**

Section – II

- Q.5** a) Describe the following terms **07**
i) Acceleration forces
ii) Braking forces
b) Explain vertical wheel load due to residual centrifugal force. **07**
- Q.6** a) Define temperature force. Explain the effects of temperature forces on track. **07**
b) Explain the with neat sketch transversal cross wind forces acting on track. Also state how to avoid it. **07**
- Q.7** a) Explain the total vertical load acting on the track. **07**
b) Explain the following terms **07**
i) Creep forces when vehicle running on straight path
ii) Creep forces when vehicle running in curves

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Tractive force can be increasing by _____.
a) reducing the load b) increasing the load
c) reducing friction d) none of this
- 2) Tractive effort is required to _____.
a) Overcome the gravity component of train mass
b) Overcome friction, windage and curve resistance
c) Accelerate the train mass
d) All of the above
- 3) The grip between wheel and the rail is known as _____.
a) Traction b) Adhesion
c) Braking d) Acceleration
- 4) Which one of the following is used as extra rail to prevent derailment?
a) Stock rail b) Guard rail
c) Tongue rail d) Wing rail
- 5) What is the size of ballast used in points and crossings under the Indian railways?
a) 10 mm b) 40 mm
c) 25 mm d) 5 mm
- 6) What is the reason of premature failure of rails?
a) Inherent defects in metal b) Tilting of rails
c) Change in gauge width d) Loose ballast
- 7) Why is it necessary for the sleepers to act as an elastic structure?
a) To absorb the vibrations of moving loads
b) To make it cheap
c) It is the material limitation
d) To keep them intact
- 8) Why the sleepers are closely spaced near the joints?
a) Because of weakness of joints b) Because of coning of wheels
c) Because of tilting of rails d) Because of more load at joints

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks
3) Assume suitable data if required

Section – I

- Q.2** a) Explain with neat sketch fundamental functional principles of vehicle running in curves. **07**
b) Describe the term derailment of vehicle through displacement of track. **07**
- Q.3** a) Explain the causes of derailment of vehicle and state how to prevent it. **07**
b) Write short note on comparison of the characteristics of railway systems. **07**
- Q.4** a) Explain bogies with creep controlled wheel sets. **07**
b) With neat sketch explain bogies with self steering wheel sets. **07**

Section – II

- Q.5** a) Describe the following terms **07**
i) Acceleration forces
ii) Braking forces
b) Explain vertical wheel load due to residual centrifugal force. **07**
- Q.6** a) Define temperature force. Explain the effects of temperature forces on track. **07**
b) Explain the with neat sketch transversal cross wind forces acting on track. Also state how to avoid it. **07**
- Q.7** a) Explain the total vertical load acting on the track. **07**
b) Explain the following terms **07**
i) Creep forces when vehicle running on straight path
ii) Creep forces when vehicle running in curves

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which type of sleeper has the maximum creep?
 - a) Wooden
 - b) Concrete
 - c) Steel
 - d) Cast iron
- 2) Railway passenger coaches are manufactured at _____.
 - a) Varanasi
 - b) Chittaranjan
 - c) Peranbur
 - d) Kolkata
- 3) Weight of the engine is categorized in _____.
 - a) sprung mass
 - b) unsprung mass
 - c) non-sprung mass
 - d) dummy mass
- 4) Weight of the wheels is categorized in _____.
 - a) sprung mass
 - b) unsprung mass
 - c) non-sprung mass
 - d) dummy mass
- 5) Weight of the passenger car is categorized in _____.
 - a) sprung mass
 - b) unsprung mass
 - c) non-sprung mass
 - d) dummy mass
- 6) Tractive force can be increasing by _____.
 - a) reducing the load
 - b) increasing the load
 - c) reducing friction
 - d) none of this
- 7) Tractive effort is required to _____.
 - a) Overcome the gravity component of train mass
 - b) Overcome friction, windage and curve resistance
 - c) Accelerate the train mass
 - d) All of the above
- 8) The grip between wheel and the rail is known as _____.
 - a) Traction
 - b) Adhesion
 - c) Braking
 - d) Acceleration
- 9) Which one of the following is used as extra rail to prevent derailment?
 - a) Stock rail
 - b) Guard rail
 - c) Tongue rail
 - d) Wing rail

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Transportation System (BTN02611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to the right indicate full marks
3) Assume suitable data if required

Section – I

- Q.2** a) Explain with neat sketch fundamental functional principles of vehicle running in curves. **07**
b) Describe the term derailment of vehicle through displacement of track. **07**
- Q.3** a) Explain the causes of derailment of vehicle and state how to prevent it. **07**
b) Write short note on comparison of the characteristics of railway systems. **07**
- Q.4** a) Explain bogies with creep controlled wheel sets. **07**
b) With neat sketch explain bogies with self steering wheel sets. **07**

Section – II

- Q.5** a) Describe the following terms **07**
i) Acceleration forces
ii) Braking forces
b) Explain vertical wheel load due to residual centrifugal force. **07**
- Q.6** a) Define temperature force. Explain the effects of temperature forces on track. **07**
b) Explain the with neat sketch transversal cross wind forces acting on track. Also state how to avoid it. **07**
- Q.7** a) Explain the total vertical load acting on the track. **07**
b) Explain the following terms **07**
i) Creep forces when vehicle running on straight path
ii) Creep forces when vehicle running in curves

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative

14

- 1) The Derivative (D) controller mode adjusts the controller output based on the
 - a) Error between set point and process variable
 - b) Rate of change of error
 - c) Accumulated error over time
 - d) None of the above
- 2) Which of the following specifications is not a transient response specification?

a) Peak time	b) Settling time
c) Rise time	d) Bandwidth
- 3) The transfer function relates:
 - a) Input to output in the time domain
 - b) System components visually
 - c) Desired vs actual output
 - d) Errors to control actions
- 4) On-off control is a type of control mode that operates based on:
 - a) Continuous adjustment of the control output
 - b) Proportional adjustment of the control output
 - c) Binary switching between two states
 - d) Integrative adjustment of the control output
- 5) Force control is used in robotics to:
 - a) Maintain a constant joint angle
 - b) Regulate the gripping force on an object
 - c) Track a pre-defined trajectory
 - d) Amplify sensor readings
- 6) In _____ space scheme, the trajectory is specified in terms of end effector configurations.

a) Joint	b) Cartesian
c) Both a and b	d) None of the above

- 7) Which method is commonly used for obstacle avoidance in trajectory planning?
- a) Path following
 - b) Potential field
 - c) Random movement
 - d) Guesswork
- 8) The concept of “localization” in obstacle avoidance refers to _____.
a) Identifying the position of obstacles in the environment
b) Determining the robot’s own position in the environment
c) Estimating the size of obstacles
d) Calculating the distance to obstacles
- 9) In potential field method, the attractive forces guide the robot _____.
a) Towards the goal location
b) Towards the obstacles
c) Along the edges of the environment
d) Towards the repulsive forces
- 10) The cell decomposition method for path planning involves _____.
a) Creating a graph of connected nodes and edges
b) Assigning attractive and repulsive forces
c) Dividing the environment into cells
d) Optimizing a cost function
- 11) In leadthrough programming, what does “leadthrough” refers to?
a) Following a predefined path
b) Providing guidance and teaching a robot manually
c) Using machine learning algorithms for automation
d) Tracking the position of robot in real-time
- 12) Which of the following factors should be considered when designing a workcell layout?
a) Employee vacation schedules
b) Market competition analysis
c) Safety regulations and guidelines
d) Product pricing strategies
- 13) Which of the following industries most commonly utilize AGVs?
a) Retail and e-commerce- b) Film and Entertainment
- c) Sports and recreation
- d) Aerospace

14) Which of the following tasks can mobile robots perform?
a) Performing complex surgeries
b) Analyzing stock market trends
c) Designing computer software
d) Assisting with household chores

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any 2 questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section II

- Q.2** a) Derive the state equations for a simple mechanical system, such as a pendulum or a mass-spring-damper system. Explain how these equations can be utilized to design control strategies for stabilizing the system. **07**
- b) Evaluate the effectiveness of joint space schemes in robot control. Discuss the principles behind joint space control methods and their suitability for addressing various control objectives, such as trajectory tracking and obstacle avoidance. Provide examples to support your discussion. **07**
- Q.3** a) Explain the trade-offs between using a Proportional (P) controller, an Integral(I) controller, and a Derivative (D) controller. Discuss scenarios where each type of controller might be most beneficial. **07**
- b) Discuss the steady-state response of a control system. Explain the concept of steady-state error and its significance in control system design. Describe the factors that affect steady-state error and discuss methods for minimizing it in practical control systems. **07**
- Q.4** a) Analyze the issues and challenges associated with trajectory planning in robotics. Discuss common problems encountered during trajectory planning, such as singularities, joint limits, and workspace constraints. Explain how these issues can be addressed in practical motion planning scenarios. **07**
- b) Enlist obstacle and collision avoidance algorithms. Explain Bug algorithm. **07**

Section II

- Q.5** a) Discuss the factors that influence the selection of actuators for a given robotic application. Consider parameters such as power requirements, precision, speed, and cost. **07**
- b) Draw a block diagram of a DC servomotor and explain its working. **07**
- Q.6** a) Discuss the key factors to consider when designing a robot cell layout for industrial automation. Discuss the factors related to workcell layout, control, safety, and human-machine interface. **07**
- b) Distinguish between Walkthrough programming and Offline programming. **07**

- Q.7** **a)** Define AGVs (Automated Guided Vehicles) and explain their classification. **07**
Discuss the different navigation techniques used in AGVs for autonomous movement.
- b)** Analyze real-world applications of mobile robots in diverse fields such as **07**
agriculture, search and rescue, surveillance, and exploration. Discuss the challenges and opportunities associated with deploying mobile robots in these domains, considering factors such as navigation complexity, energy efficiency, and adaptability to changing conditions.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative

14

- 1) The concept of "localization" in obstacle avoidance refers to _____.
 - a) Identifying the position of obstacles in the environment
 - b) Determining the robot's own position in the environment
 - c) Estimating the size of obstacles
 - d) Calculating the distance to obstacles
- 2) In potential field method, the attractive forces guide the robot _____.
 - a) Towards the goal location
 - b) Towards the obstacles
 - c) Along the edges of the environment
 - d) Towards the repulsive forces
- 3) The cell decomposition method for path planning involves _____.
 - a) Creating a graph of connected nodes and edges
 - b) Assigning attractive and repulsive forces
 - c) Dividing the environment into cells
 - d) Optimizing a cost function
- 4) In leadthrough programming, what does "leadthrough" refers to?
 - a) Following a predefined path
 - b) Providing guidance and teaching a robot manually
 - c) Using machine learning algorithms for automation
 - d) Tracking the position of robot in real-time
- 5) Which of the following factors should be considered when designing a workcell layout?
 - a) Employee vacation schedules
 - b) Market competition analysis
 - c) Safety regulations and guidelines
 - d) Product pricing strategies
- 6) Which of the following industries most commonly utilize AGVs?

a) Retail and e-commerce	b) Film and Entertainment
c) Sports and recreation	d) Aerospace

- 7) Which of the following tasks can mobile robots perform?
- a) Performing complex surgeries
 - b) Analyzing stock market trends
 - c) Designing computer software
 - d) Assisting with household chores
- 8) The Derivative (D) controller mode adjusts the controller output based on the
- a) Error between set point and process variable
 - b) Rate of change of error
 - c) Accumulated error over time
 - d) None of the above
- 9) Which of the following specifications is not a transient response specification?
- a) Peak time
 - b) Settling time
 - c) Rise time
 - d) Bandwidth
- 10) The transfer function relates:
- a) Input to output in the time domain
 - b) System components visually
 - c) Desired vs actual output
 - d) Errors to control actions
- 11) On-off control is a type of control mode that operates based on:
- a) Continuous adjustment of the control output
 - b) Proportional adjustment of the control output
 - c) Binary switching between two states
 - d) Integrative adjustment of the control output
- 12) Force control is used in robotics to:
- a) Maintain a constant joint angle
 - b) Regulate the gripping force on an object
 - c) Track a pre-defined trajectory
 - d) Amplify sensor readings
- 13) In _____ space scheme, the trajectory is specified in terms of end effector configurations.
- a) Joint
 - b) Cartesian
 - c) Both a and b
 - d) None of the above
- 14) Which method is commonly used for obstacle avoidance in trajectory planning?
- a) Path following
 - b) Potential field
 - c) Random movement
 - d) Guesswork

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any 2 questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section II

- Q.2** a) Derive the state equations for a simple mechanical system, such as a pendulum or a mass-spring-damper system. Explain how these equations can be utilized to design control strategies for stabilizing the system. **07**
- b) Evaluate the effectiveness of joint space schemes in robot control. Discuss the principles behind joint space control methods and their suitability for addressing various control objectives, such as trajectory tracking and obstacle avoidance. Provide examples to support your discussion. **07**
- Q.3** a) Explain the trade-offs between using a Proportional (P) controller, an Integral(I) controller, and a Derivative (D) controller. Discuss scenarios where each type of controller might be most beneficial. **07**
- b) Discuss the steady-state response of a control system. Explain the concept of steady-state error and its significance in control system design. Describe the factors that affect steady-state error and discuss methods for minimizing it in practical control systems. **07**
- Q.4** a) Analyze the issues and challenges associated with trajectory planning in robotics. Discuss common problems encountered during trajectory planning, such as singularities, joint limits, and workspace constraints. Explain how these issues can be addressed in practical motion planning scenarios. **07**
- b) Enlist obstacle and collision avoidance algorithms. Explain Bug algorithm. **07**

Section II

- Q.5** a) Discuss the factors that influence the selection of actuators for a given robotic application. Consider parameters such as power requirements, precision, speed, and cost. **07**
- b) Draw a block diagram of a DC servomotor and explain its working. **07**
- Q.6** a) Discuss the key factors to consider when designing a robot cell layout for industrial automation. Discuss the factors related to workcell layout, control, safety, and human-machine interface. **07**
- b) Distinguish between Walkthrough programming and Offline programming. **07**

- Q.7** **a)** Define AGVs (Automated Guided Vehicles) and explain their classification. **07**
Discuss the different navigation techniques used in AGVs for autonomous movement.
- b)** Analyze real-world applications of mobile robots in diverse fields such as **07**
agriculture, search and rescue, surveillance, and exploration. Discuss the challenges and opportunities associated with deploying mobile robots in these domains, considering factors such as navigation complexity, energy efficiency, and adaptability to changing conditions.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative

14

- 1) In leadthrough programming, what does "leadthrough" refers to?
 - a) Following a predefined path
 - b) Providing guidance and teaching a robot manually
 - c) Using machine learning algorithms for automation
 - d) Tracking the position of robot in real-time
- 2) Which of the following factors should be considered when designing a workcell layout?
 - a) Employee vacation schedules
 - b) Market competition analysis
 - c) Safety regulations and guidelines
 - d) Product pricing strategies
- 3) Which of the following industries most commonly utilize AGVs?

a) Retail and e-commerce	b) Film and Entertainment
c) Sports and recreation	d) Aerospace
- 4) Which of the following tasks can mobile robots perform?
 - a) Performing complex surgeries
 - b) Analyzing stock market trends
 - c) Designing computer software
 - d) Assisting with household chores
- 5) The Derivative (D) controller mode adjusts the controller output based on the
 - a) Error between set point and process variable
 - b) Rate of change of error
 - c) Accumulated error over time
 - d) None of the above
- 6) Which of the following specifications is not a transient response specification?

a) Peak time	b) Settling time
c) Rise time	d) Bandwidth

- 7) The transfer function relates:
- Input to output in the time domain
 - System components visually
 - Desired vs actual output
 - Errors to control actions
- 8) On-off control is a type of control mode that operates based on:
- Continuous adjustment of the control output
 - Proportional adjustment of the control output
 - Binary switching between two states
 - Integrative adjustment of the control output
- 9) Force control is used in robotics to:
- Maintain a constant joint angle
 - Regulate the gripping force on an object
 - Track a pre-defined trajectory
 - Amplify sensor readings
- 10) In _____ space scheme, the trajectory is specified in terms of end effector configurations.
- | | |
|-----------------|----------------------|
| a) Joint | b) Cartesian |
| c) Both a and b | d) None of the above |
- 11) Which method is commonly used for obstacle avoidance in trajectory planning?
- | | |
|--------------------|--------------------|
| a) Path following | b) Potential field |
| c) Random movement | d) Guesswork |
- 12) The concept of “localization” in obstacle avoidance refers to _____.
- Identifying the position of obstacles in the environment
 - Determining the robot’s own position in the environment
 - Estimating the size of obstacles
 - Calculating the distance to obstacles
- 13) In potential field method, the attractive forces guide the robot _____.
- Towards the goal location
 - Towards the obstacles
 - Along the edges of the environment
 - Towards the repulsive forces
- 14) The cell decomposition method for path planning involves _____.
- Creating a graph of connected nodes and edges
 - Assigning attractive and repulsive forces
 - Dividing the environment into cells
 - Optimizing a cost function

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any 2 questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section II

- Q.2** a) Derive the state equations for a simple mechanical system, such as a pendulum or a mass-spring-damper system. Explain how these equations can be utilized to design control strategies for stabilizing the system. **07**
- b) Evaluate the effectiveness of joint space schemes in robot control. Discuss the principles behind joint space control methods and their suitability for addressing various control objectives, such as trajectory tracking and obstacle avoidance. Provide examples to support your discussion. **07**
- Q.3** a) Explain the trade-offs between using a Proportional (P) controller, an Integral(I) controller, and a Derivative (D) controller. Discuss scenarios where each type of controller might be most beneficial. **07**
- b) Discuss the steady-state response of a control system. Explain the concept of steady-state error and its significance in control system design. Describe the factors that affect steady-state error and discuss methods for minimizing it in practical control systems. **07**
- Q.4** a) Analyze the issues and challenges associated with trajectory planning in robotics. Discuss common problems encountered during trajectory planning, such as singularities, joint limits, and workspace constraints. Explain how these issues can be addressed in practical motion planning scenarios. **07**
- b) Enlist obstacle and collision avoidance algorithms. Explain Bug algorithm. **07**

Section II

- Q.5** a) Discuss the factors that influence the selection of actuators for a given robotic application. Consider parameters such as power requirements, precision, speed, and cost. **07**
- b) Draw a block diagram of a DC servomotor and explain its working. **07**
- Q.6** a) Discuss the key factors to consider when designing a robot cell layout for industrial automation. Discuss the factors related to workcell layout, control, safety, and human-machine interface. **07**
- b) Distinguish between Walkthrough programming and Offline programming. **07**

- Q.7** **a)** Define AGVs (Automated Guided Vehicles) and explain their classification. **07**
Discuss the different navigation techniques used in AGVs for autonomous movement.
- b)** Analyze real-world applications of mobile robots in diverse fields such as **07**
agriculture, search and rescue, surveillance, and exploration. Discuss the challenges and opportunities associated with deploying mobile robots in these domains, considering factors such as navigation complexity, energy efficiency, and adaptability to changing conditions.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative

14

- 1) In _____ space scheme, the trajectory is specified in terms of end effector configurations.

a) Joint	b) Cartesian
c) Both a and b	d) None of the above
- 2) Which method is commonly used for obstacle avoidance in trajectory planning?

a) Path following	b) Potential field
c) Random movement	d) Guesswork
- 3) The concept of "localization" in obstacle avoidance refers to _____.
 - a) Identifying the position of obstacles in the environment
 - b) Determining the robot's own position in the environment
 - c) Estimating the size of obstacles
 - d) Calculating the distance to obstacles
- 4) In potential field method, the attractive forces guide the robot _____.
 - a) Towards the goal location
 - b) Towards the obstacles
 - c) Along the edges of the environment
 - d) Towards the repulsive forces
- 5) The cell decomposition method for path planning involves _____.
 - a) Creating a graph of connected nodes and edges
 - b) Assigning attractive and repulsive forces
 - c) Dividing the environment into cells
 - d) Optimizing a cost function
- 6) In leadthrough programming, what does "leadthrough" refers to?
 - a) Following a predefined path
 - b) Providing guidance and teaching a robot manually
 - c) Using machine learning algorithms for automation
 - d) Tracking the position of robot in real-time

- 7) Which of the following factors should be considered when designing a workcell layout?
- a) Employee vacation schedules
 - b) Market competition analysis
 - c) Safety regulations and guidelines
 - d) Product pricing strategies
- 8) Which of the following industries most commonly utilize AGVs?
- a) Retail and e-commerce
 - b) Film and Entertainment
 - c) Sports and recreation
 - d) Aerospace
- 9) Which of the following tasks can mobile robots perform?
- a) Performing complex surgeries
 - b) Analyzing stock market trends
 - c) Designing computer software
 - d) Assisting with household chores
- 10) The Derivative (D) controller mode adjusts the controller output based on the
- a) Error between set point and process variable
 - b) Rate of change of error
 - c) Accumulated error over time
 - d) None of the above
- 11) Which of the following specifications is not a transient response specification?
- a) Peak time
 - b) Settling time
 - c) Rise time
 - d) Bandwidth
- 12) The transfer function relates:
- a) Input to output in the time domain
 - b) System components visually
 - c) Desired vs actual output
 - d) Errors to control actions
- 13) On-off control is a type of control mode that operates based on:
- a) Continuous adjustment of the control output
 - b) Proportional adjustment of the control output
 - c) Binary switching between two states
 - d) Integrative adjustment of the control output
- 14) Force control is used in robotics to:
- a) Maintain a constant joint angle
 - b) Regulate the gripping force on an object
 - c) Track a pre-defined trajectory
 - d) Amplify sensor readings

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Industrial Networks and Controllers (BTN02612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any 2 questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section II

- Q.2** a) Derive the state equations for a simple mechanical system, such as a pendulum or a mass-spring-damper system. Explain how these equations can be utilized to design control strategies for stabilizing the system. **07**
- b) Evaluate the effectiveness of joint space schemes in robot control. Discuss the principles behind joint space control methods and their suitability for addressing various control objectives, such as trajectory tracking and obstacle avoidance. Provide examples to support your discussion. **07**
- Q.3** a) Explain the trade-offs between using a Proportional (P) controller, an Integral(I) controller, and a Derivative (D) controller. Discuss scenarios where each type of controller might be most beneficial. **07**
- b) Discuss the steady-state response of a control system. Explain the concept of steady-state error and its significance in control system design. Describe the factors that affect steady-state error and discuss methods for minimizing it in practical control systems. **07**
- Q.4** a) Analyze the issues and challenges associated with trajectory planning in robotics. Discuss common problems encountered during trajectory planning, such as singularities, joint limits, and workspace constraints. Explain how these issues can be addressed in practical motion planning scenarios. **07**
- b) Enlist obstacle and collision avoidance algorithms. Explain Bug algorithm. **07**

Section II

- Q.5** a) Discuss the factors that influence the selection of actuators for a given robotic application. Consider parameters such as power requirements, precision, speed, and cost. **07**
- b) Draw a block diagram of a DC servomotor and explain its working. **07**
- Q.6** a) Discuss the key factors to consider when designing a robot cell layout for industrial automation. Discuss the factors related to workcell layout, control, safety, and human-machine interface. **07**
- b) Distinguish between Walkthrough programming and Offline programming. **07**

- Q.7** **a)** Define AGVs (Automated Guided Vehicles) and explain their classification. **07**
Discuss the different navigation techniques used in AGVs for autonomous movement.
- b)** Analyze real-world applications of mobile robots in diverse fields such as **07**
agriculture, search and rescue, surveillance, and exploration. Discuss the challenges and opportunities associated with deploying mobile robots in these domains, considering factors such as navigation complexity, energy efficiency, and adaptability to changing conditions.

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume suitable data if required.
 4) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer.

14

- 1) How are 3D printing processes classified?
 - a) By the type of material used
 - b) By the size of the object being printed
 - c) By the number of colors in the design
 - d) By the speed of the printing process
- 2) What is the purpose of software in 3D printing?
 - a) To create a physical object from a digital design
 - b) To choose the color and texture of the final product
 - c) To determine the size and shape of the final product
 - d) To program the printer's hardware
- 3) What is an STL file?
 - a) A file format used in 2D printing
 - b) A file format used in 3D printing
 - c) A file format used in video editing
 - d) A file format used in music production
- 4) Which additive manufacturing technology uses a UV laser to cure photopolymer resin layer by layer?
 - a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)
- 5) Which type of software is used for creating the 3D models that will be printed?
 - a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Rendering software
- 6) What is the purpose of slicing software in 3D printing?
 - a) Creating 3D models
 - b) Controlling the 3D printer
 - c) Transforming 3D models into printable instructions
 - d) Visualizing the final printed object

- 7) Which software is responsible for controlling the 3D printer during the printing process?
- Slicing/CAM software
 - Printer Control/Client software
 - 3D Modeling/CAD software
 - Simulation software
- 8) What is the purpose of 3D scanning?
- Creating 3D models for virtual reality
 - Capturing real-world objects and converting them into digital 3D models
 - Controlling the 3D printer during the printing process
 - Transforming 2D images into 3D representations
- 9) Which additive manufacturing technology uses a digital light projector to cure liquid resin layer by layer?
- Stereolithography (SLA)
 - Digital Light Processing (DLP)
 - Fused Deposition Modeling (FDM)
 - Selective Laser Sintering (SLS)
- 10) Which additive manufacturing technology extrudes thermoplastic filament layer by layer to build a 3D object?
- Stereolithography (SLA)
 - Digital Light Processing (DLP)
 - Fused Deposition Modeling (FDM)
 - Selective Laser Sintering (SLS)
- 11) Which design approach focuses on optimizing the design for efficient manufacturing and assembly?
- Design for 3D Printing
 - Design for Manufacturing and Assembly
 - Core DFM for 3D Printing
 - Design Tools for 3D printing
- 12) What is one of the objectives of Design for 3D Printing?
- Maximizing production planning and control
 - Minimizing the use of additive manufacturing technologies
 - Optimizing design for efficient manufacturing and assembly
 - Implementing traditional manufacturing techniques in 3D printing
- 13) Which technology is used to create digital models for 3D printing?
- Computer-Aided Design (CAD)
 - Virtual Reality (VR)
 - Augmented Reality (AR)
 - Artificial Intelligence (AI)
- 14) What is the main advantage of using layers in 3D printing?
- It makes the printing process faster
 - It allows for more precise and complex designs
 - It reduces the cost of materials
 - It allows for a smoother surface finish

Seat No.	
----------	--

Set

P

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section I, Q. No. 2 is compulsory and attempt any two questions from the remaining of the question.
 2) In Section II, Q. No. 6 is compulsory and attempt any two questions from the remaining of the question.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figures to the right indicate full marks.

Section – I

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | Discuss CAD and Associated technology used in 3d printer. | 10 |
| Q.3 | Illustrate classification of 3d printing processes. | 09 |
| Q.4 | Enlist different 3D Printing Technologies and describe any 01 with application. | 09 |
| Q.5 | Explain the concept of Design for Manufacturing and Assembly (DFMA) and explain its significance in the context of 3D printing. | 09 |

Section – II

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | Discuss the significance of 3D modeling/CAD software in the 3D printing workflow. | 10 |
| Q.7 | Explain the key steps involved in preparing a 3D model for printing using slicing/CAM software. | 09 |
| Q.8 | Describe the basic principles behind 3D scanning technology and the process involved in creating digital 3D models. | 09 |
| Q.9 | Illustrate the importance of cleaning and repairing 3D scans before 3D printing. | 09 |

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume suitable data if required.
 4) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer.

14

- 1) What is the purpose of 3D scanning?
 - a) Creating 3D models for virtual reality
 - b) Capturing real-world objects and converting them into digital 3D models
 - c) Controlling the 3D printer during the printing process
 - d) Transforming 2D images into 3D representations

- 2) Which additive manufacturing technology uses a digital light projector to cure liquid resin layer by layer?
 - a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)

- 3) Which additive manufacturing technology extrudes thermoplastic filament layer by layer to build a 3D object?
 - a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)

- 4) Which design approach focuses on optimizing the design for efficient manufacturing and assembly?
 - a) Design for 3D Printing
 - b) Design for Manufacturing and Assembly
 - c) Core DFM for 3D Printing
 - d) Design Tools for 3D printing

- 5) What is one of the objectives of Design for 3D Printing?
 - a) Maximizing production planning and control
 - b) Minimizing the use of additive manufacturing technologies
 - c) Optimizing design for efficient manufacturing and assembly
 - d) Implementing traditional manufacturing techniques in 3D printing

- 6) Which technology is used to create digital models for 3D printing?
 - a) Computer-Aided Design (CAD)
 - b) Virtual Reality (VR)
 - c) Augmented Reality (AR)
 - d) Artificial Intelligence (AI)
- 7) What is the main advantage of using layers in 3D printing?
 - a) It makes the printing process faster
 - b) It allows for more precise and complex designs
 - c) It reduces the cost of materials
 - d) It allows for a smoother surface finish
- 8) How are 3D printing processes classified?
 - a) By the type of material used
 - b) By the size of the object being printed
 - c) By the number of colors in the design
 - d) By the speed of the printing process
- 9) What is the purpose of software in 3D printing?
 - a) To create a physical object from a digital design
 - b) To choose the color and texture of the final product
 - c) To determine the size and shape of the final product
 - d) To program the printer's hardware
- 10) What is an STL file?
 - a) A file format used in 2D printing
 - b) A file format used in 3D printing
 - c) A file format used in video editing
 - d) A file format used in music production
- 11) Which additive manufacturing technology uses a UV laser to cure photopolymer resin layer by layer?
 - a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)
- 12) Which type of software is used for creating the 3D models that will be printed?
 - a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Rendering software
- 13) What is the purpose of slicing software in 3D printing?
 - a) Creating 3D models
 - b) Controlling the 3D printer
 - c) Transforming 3D models into printable instructions
 - d) Visualizing the final printed object
- 14) Which software is responsible for controlling the 3D printer during the printing process?
 - a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Simulation software

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section I, Q. No. 2 is compulsory and attempt any two questions from the remaining of the question.
2) In Section II, Q. No. 6 is compulsory and attempt any two questions from the remaining of the question.
3) Assume suitable data if required.
4) Use of scientific calculator is allowed.
5) Figures to the right indicate full marks.

Section – I

- Q.2** Discuss CAD and Associated technology used in 3d printer. **10**
- Q.3** Illustrate classification of 3d printing processes. **09**
- Q.4** Enlist different 3D Printing Technologies and describe any 01 with application. **09**
- Q.5** Explain the concept of Design for Manufacturing and Assembly (DFMA) and explain its significance in the context of 3D printing. **09**

Section – II

- Q.6** Discuss the significance of 3D modeling/CAD software in the 3D printing workflow. **10**
- Q.7** Explain the key steps involved in preparing a 3D model for printing using slicing/CAM software. **09**
- Q.8** Describe the basic principles behind 3D scanning technology and the process involved in creating digital 3D models. **09**
- Q.9** Illustrate the importance of cleaning and repairing 3D scans before 3D printing. **09**

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume suitable data if required.
 4) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer.

14

- 1) Which design approach focuses on optimizing the design for efficient manufacturing and assembly?
 - a) Design for 3D Printing
 - b) Design for Manufacturing and Assembly
 - c) Core DFM for 3D Printing
 - d) Design Tools for 3D printing
- 2) What is one of the objectives of Design for 3D Printing?
 - a) Maximizing production planning and control
 - b) Minimizing the use of additive manufacturing technologies
 - c) Optimizing design for efficient manufacturing and assembly
 - d) Implementing traditional manufacturing techniques in 3D printing
- 3) Which technology is used to create digital models for 3D printing?
 - a) Computer-Aided Design (CAD)
 - b) Virtual Reality (VR)
 - c) Augmented Reality (AR)
 - d) Artificial Intelligence (AI)
- 4) What is the main advantage of using layers in 3D printing?
 - a) It makes the printing process faster
 - b) It allows for more precise and complex designs
 - c) It reduces the cost of materials
 - d) It allows for a smoother surface finish
- 5) How are 3D printing processes classified?
 - a) By the type of material used
 - b) By the size of the object being printed
 - c) By the number of colors in the design
 - d) By the speed of the printing process

- 6) What is the purpose of software in 3D printing?
- a) To create a physical object from a digital design
 - b) To choose the color and texture of the final product
 - c) To determine the size and shape of the final product
 - d) To program the printer's hardware
- 7) What is an STL file?
- a) A file format used in 2D printing
 - b) A file format used in 3D printing
 - c) A file format used in video editing
 - d) A file format used in music production
- 8) Which additive manufacturing technology uses a UV laser to cure photopolymer resin layer by layer?
- a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)
- 9) Which type of software is used for creating the 3D models that will be printed?
- a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Rendering software
- 10) What is the purpose of slicing software in 3D printing?
- a) Creating 3D models
 - b) Controlling the 3D printer
 - c) Transforming 3D models into printable instructions
 - d) Visualizing the final printed object
- 11) Which software is responsible for controlling the 3D printer during the printing process?
- a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Simulation software
- 12) What is the purpose of 3D scanning?
- a) Creating 3D models for virtual reality
 - b) Capturing real-world objects and converting them into digital 3D models
 - c) Controlling the 3D printer during the printing process
 - d) Transforming 2D images into 3D representations
- 13) Which additive manufacturing technology uses a digital light projector to cure liquid resin layer by layer?
- a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)
- 14) Which additive manufacturing technology extrudes thermoplastic filament layer by layer to build a 3D object?
- a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section I, Q. No. 2 is compulsory and attempt any two questions from the remaining of the question.
2) In Section II, Q. No. 6 is compulsory and attempt any two questions from the remaining of the question.
3) Assume suitable data if required.
4) Use of scientific calculator is allowed.
5) Figures to the right indicate full marks.

Section – I

- Q.2** Discuss CAD and Associated technology used in 3d printer. **10**
- Q.3** Illustrate classification of 3d printing processes. **09**
- Q.4** Enlist different 3D Printing Technologies and describe any 01 with application. **09**
- Q.5** Explain the concept of Design for Manufacturing and Assembly (DFMA) and explain its significance in the context of 3D printing. **09**

Section – II

- Q.6** Discuss the significance of 3D modeling/CAD software in the 3D printing workflow. **10**
- Q.7** Explain the key steps involved in preparing a 3D model for printing using slicing/CAM software. **09**
- Q.8** Describe the basic principles behind 3D scanning technology and the process involved in creating digital 3D models. **09**
- Q.9** Illustrate the importance of cleaning and repairing 3D scans before 3D printing. **09**

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume suitable data if required.
 4) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer.

14

- 1) What is the purpose of slicing software in 3D printing?
 - a) Creating 3D models
 - b) Controlling the 3D printer
 - c) Transforming 3D models into printable instructions
 - d) Visualizing the final printed object
- 2) Which software is responsible for controlling the 3D printer during the printing process?
 - a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Simulation software
- 3) What is the purpose of 3D scanning?
 - a) Creating 3D models for virtual reality
 - b) Capturing real-world objects and converting them into digital 3D models
 - c) Controlling the 3D printer during the printing process
 - d) Transforming 2D images into 3D representations
- 4) Which additive manufacturing technology uses a digital light projector to cure liquid resin layer by layer?
 - a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)
- 5) Which additive manufacturing technology extrudes thermoplastic filament layer by layer to build a 3D object?
 - a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)

- 6) Which design approach focuses on optimizing the design for efficient manufacturing and assembly?
- a) Design for 3D Printing
 - b) Design for Manufacturing and Assembly
 - c) Core DFM for 3D Printing
 - d) Design Tools for 3D printing
- 7) What is one of the objectives of Design for 3D Printing?
- a) Maximizing production planning and control
 - b) Minimizing the use of additive manufacturing technologies
 - c) Optimizing design for efficient manufacturing and assembly
 - d) Implementing traditional manufacturing techniques in 3D printing
- 8) Which technology is used to create digital models for 3D printing?
- a) Computer-Aided Design (CAD)
 - b) Virtual Reality (VR)
 - c) Augmented Reality (AR)
 - d) Artificial Intelligence (AI)
- 9) What is the main advantage of using layers in 3D printing?
- a) It makes the printing process faster
 - b) It allows for more precise and complex designs
 - c) It reduces the cost of materials
 - d) It allows for a smoother surface finish
- 10) How are 3D printing processes classified?
- a) By the type of material used
 - b) By the size of the object being printed
 - c) By the number of colors in the design
 - d) By the speed of the printing process
- 11) What is the purpose of software in 3D printing?
- a) To create a physical object from a digital design
 - b) To choose the color and texture of the final product
 - c) To determine the size and shape of the final product
 - d) To program the printer's hardware
- 12) What is an STL file?
- a) A file format used in 2D printing
 - b) A file format used in 3D printing
 - c) A file format used in video editing
 - d) A file format used in music production
- 13) Which additive manufacturing technology uses a UV laser to cure photopolymer resin layer by layer?
- a) Stereolithography (SLA)
 - b) Digital Light Processing (DLP)
 - c) Fused Deposition Modeling (FDM)
 - d) Selective Laser Sintering (SLS)
- 14) Which type of software is used for creating the 3D models that will be printed?
- a) Slicing/CAM software
 - b) Printer Control/Client software
 - c) 3D Modeling/CAD software
 - d) Rendering software

Seat No.	
----------	--

Set

S

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
3D Printing Hardware & Software (BTN02613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) In Section I, Q. No. 2 is compulsory and attempt any two questions from the remaining of the question.
 2) In Section II, Q. No. 6 is compulsory and attempt any two questions from the remaining of the question.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figures to the right indicate full marks.

Section – I

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.2 | Discuss CAD and Associated technology used in 3d printer. | 10 |
| Q.3 | Illustrate classification of 3d printing processes. | 09 |
| Q.4 | Enlist different 3D Printing Technologies and describe any 01 with application. | 09 |
| Q.5 | Explain the concept of Design for Manufacturing and Assembly (DFMA) and explain its significance in the context of 3D printing. | 09 |

Section – II

- | | | |
|------------|---------------------------------------------------------------------------------------------------------------------|-----------|
| Q.6 | Discuss the significance of 3D modeling/CAD software in the 3D printing workflow. | 10 |
| Q.7 | Explain the key steps involved in preparing a 3D model for printing using slicing/CAM software. | 09 |
| Q.8 | Describe the basic principles behind 3D scanning technology and the process involved in creating digital 3D models. | 09 |
| Q.9 | Illustrate the importance of cleaning and repairing 3D scans before 3D printing. | 09 |

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:

14

- 1) The mean temperature of heat addition can be increased by _____.
 - a) increasing the amount of heat supplied at high temperatures
 - b) decreasing the amount of heat added at low temperatures
 - c) both of the mentioned
 - d) none of the mentioned
- 2) Which cycle is idealized cycle for the spark ignition internal combustion engines?
 - a) Otto cycle
 - b) Diesel cycle
 - c) Dual cycle
 - d) Bryton cycle
- 3) In diesel cycle heat rejection occurs at _____.
 - a) Reversible constant volume process
 - b) Reversible constant pressure process
 - c) Irreversible constant volume process
 - d) Irreversible constant pressure process
- 4) Which of the following energy has the greatest potential among all the sources of renewable energy?
 - a) Solar energy
 - b) Wind Energy
 - c) Thermal energy
 - d) Hydro-electrical energy
- 5) What is total amount of solar energy received by earth and atmosphere?
 - a) 3.8×10^{24} J/year
 - b) 9.2×10^{24} J/year
 - c) 5.4×10^{24} J/year
 - d) 2.1×10^{24} J/year
- 6) Which is most common source of energy from which electricity is produced?
 - a) Hydroelectricity
 - b) Wind energy
 - c) Coal
 - d) Solar energy
- 7) Thermocouple is a _____.
 - a) Primary device
 - b) Secondary transducer
 - c) Tertiary transducer
 - d) None of the mentioned

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
 2) Assume suitable data if required.
 3) Use of scientific calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Drive an expression of Carnot cycle. **07**
 - b) Drive an expression of Brayton cycle. **07**
- Q.3 Solve:**
- a) Classify in details of different types of Batteries. **07**
 - b) Explain in details construction and working of Lithium Ion Batteries. **07**
- Q.4 Solve:**
- a) Describe Thermionic convertor with neat sketches. **07**
 - b) Write a short note on types of Thermoelectric Convertor. **07**

Section – II

- Q.5 Solve:**
- a) Describe Thermodynamics and kinetics processes of fuel Fuel cells. **07**
 - b) Write in details of types of Fuel cells. **07**
- Q.6 Solve:**
- a) Explain Electrical & Thermal energy storage technology with neat sketch. **07**
 - b) Describe in details of Chemical energy storage. **07**
- Q.7 Solve:**
- a) Explain in details of solar photovoltaic systems. **07**
 - b) Describe in details Construction and working of solar cell. **07**

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:

14

- 1) Operation of thermocouple is governed by _____.
 - a) Peltier effect
 - b) Seebeck effect
 - c) Thomson effect
 - d) All of the mentioned
- 2) The amount of photo generated current increases slightly with an increase in _____.
 - a) Temperature
 - b) Photons
 - c) Diode current
 - d) Shunt current
- 3) Solar cells are made from bulk materials that are cut into wafer of _____ thickness.
 - a) 120-180 μm
 - b) 120-220 μm
 - c) 180-220 μm
 - d) 180-240 μm
- 4) Chemical energy is converted to _____ energy by a fuel cell.
 - a) solar
 - b) electrical
 - c) potential
 - d) mechanical
- 5) Which of the following element is used as a thermocouple in nuclear reactor?
 - a) Boron
 - b) Platinum
 - c) Copper
 - d) Iron
- 6) Which of the following does not affect the reactions in a fuel cell?
 - a) Electrolyte composition
 - b) Electrode composition
 - c) A combination of fuel and oxidiser
 - d) Catalytic effect of the reaction container
- 7) Thermo couple cannot be used to measure _____.
 - a) Temperature of gas
 - b) Temperature of liquid
 - c) IR radiation
 - d) None of the mentioned
- 8) The mean temperature of heat addition can be increased by _____.
 - a) increasing the amount of heat supplied at high temperatures
 - b) decreasing the amount of heat added at low temperatures
 - c) both of the mentioned
 - d) none of the mentioned

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
 2) Assume suitable data if required.
 3) Use of scientific calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- | | | |
|----|---------------------------------------|-----------|
| a) | Drive an expression of Carnot cycle. | 07 |
| b) | Drive an expression of Brayton cycle. | 07 |
- Q.3 Solve:**
- | | | |
|----|-----------------------------------------------------------------------|-----------|
| a) | Classify in details of different types of Batteries. | 07 |
| b) | Explain in details construction and working of Lithium Ion Batteries. | 07 |
- Q.4 Solve:**
- | | | |
|----|----------------------------------------------------------|-----------|
| a) | Describe Thermionic convertor with neat sketches. | 07 |
| b) | Write a short note on types of Thermoelectric Convertor. | 07 |

Section – II

- Q.5 Solve:**
- | | | |
|----|--------------------------------------------------------------------|-----------|
| a) | Describe Thermodynamics and kinetics processes of fuel Fuel cells. | 07 |
| b) | Write in details of types of Fuel cells. | 07 |
- Q.6 Solve:**
- | | | |
|----|--------------------------------------------------------------------------|-----------|
| a) | Explain Electrical & Thermal energy storage technology with neat sketch. | 07 |
| b) | Describe in details of Chemical energy storage. | 07 |
- Q.7 Solve:**
- | | | |
|----|-------------------------------------------------------------|-----------|
| a) | Explain in details of solar photovoltaic systems. | 07 |
| b) | Describe in details Construction and working of solar cell. | 07 |

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:

14

- 1) Chemical energy is converted to _____ energy by a fuel cell.
 - a) solar
 - b) electrical
 - c) potential
 - d) mechanical
- 2) Which of the following element is used as a thermocouple in nuclear reactor?
 - a) Boron
 - b) Platinum
 - c) Copper
 - d) Iron
- 3) Which of the following does not affect the reactions in a fuel cell?
 - a) Electrolyte composition
 - b) Electrode composition
 - c) A combination of fuel and oxidiser
 - d) Catalytic effect of the reaction container
- 4) Thermo couple cannot be used to measure _____.
 - a) Temperature of gas
 - b) Temperature of liquid
 - c) IR radiation
 - d) None of the mentioned
- 5) The mean temperature of heat addition can be increased by _____.
 - a) increasing the amount of heat supplied at high temperatures
 - b) decreasing the amount of heat added at low temperatures
 - c) both of the mentioned
 - d) none of the mentioned
- 6) Which cycle is idealized cycle for the spark ignition internal combustion engines?
 - a) Otto cycle
 - b) Diesel cycle
 - c) Dual cycle
 - d) Bryton cycle
- 7) In diesel cycle heat rejection occurs at _____.
 - a) Reversible constant volume process
 - b) Reversible constant pressure process
 - c) Irreversible constant volume process
 - d) Irreversible constant pressure process

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
 2) Assume suitable data if required.
 3) Use of scientific calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Drive an expression of Carnot cycle. 07
 - b) Drive an expression of Brayton cycle. 07
- Q.3 Solve:**
- a) Classify in details of different types of Batteries. 07
 - b) Explain in details construction and working of Lithium Ion Batteries. 07
- Q.4 Solve:**
- a) Describe Thermionic convertor with neat sketches. 07
 - b) Write a short note on types of Thermoelectric Convertor. 07

Section – II

- Q.5 Solve:**
- a) Describe Thermodynamics and kinetics processes of fuel Fuel cells. 07
 - b) Write in details of types of Fuel cells. 07
- Q.6 Solve:**
- a) Explain Electrical & Thermal energy storage technology with neat sketch. 07
 - b) Describe in details of Chemical energy storage. 07
- Q.7 Solve:**
- a) Explain in details of solar photovoltaic systems. 07
 - b) Describe in details Construction and working of solar cell. 07

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer:**14**

- 1) Which is most common source of energy from which electricity is produced?
 - a) Hydroelectricity
 - b) Wind energy
 - c) Coal
 - d) Solar energy
- 2) Thermocouple is a _____.
 - a) Primary device
 - b) Secondary transducer
 - c) Tertiary transducer
 - d) None of the mentioned
- 3) Operation of thermocouple is governed by _____.
 - a) Peltier effect
 - b) Seebeck effect
 - c) Thomson effect
 - d) All of the mentioned
- 4) The amount of photo generated current increases slightly with an increase in _____.
 - a) Temperature
 - b) Photons
 - c) Diode current
 - d) Shunt current
- 5) Solar cells are made from bulk materials that are cut into wafer of _____ thickness.
 - a) 120-180 μ m
 - b) 120-220 μ m
 - c) 180-220 μ m
 - d) 180-240 μ m
- 6) Chemical energy is converted to _____ energy by a fuel cell.
 - a) solar
 - b) electrical
 - c) potential
 - d) mechanical
- 7) Which of the following element is used as a thermocouple in nuclear reactor?
 - a) Boron
 - b) Platinum
 - c) Copper
 - d) Iron
- 8) Which of the following does not affect the reactions in a fuel cell?
 - a) Electrolyte composition
 - b) Electrode composition
 - c) A combination of fuel and oxidiser
 - d) Catalytic effect of the reaction container

- 9) Thermo couple cannot be used to measure _____.
a) Temperature of gas b) Temperature of liquid
c) IR radiation d) None of the mentioned
- 10) The mean temperature of heat addition can be increased by _____.
a) increasing the amount of heat supplied at high temperatures
b) decreasing the amount of heat added at low temperatures
c) both of the mentioned
d) none of the mentioned
- 11) Which cycle is idealized cycle for the spark ignition internal combustion engines?
a) Otto cycle b) Diesel cycle
c) Dual cycle d) Bryton cycle
- 12) In diesel cycle heat rejection occurs at _____.
a) Reversible constant volume process
b) Reversible constant pressure process
c) Irreversible constant volume process
d) Irreversible constant pressure process
- 13) Which of the following energy has the greatest potential among all the sources of renewable energy?
a) Solar energy b) Wind Energy
c) Thermal energy d) Hydro-electrical energy
- 14) What is total amount of solar energy received by earth and atmosphere?
a) 3.8×10^{24} J/year b) 9.2×10^{24} J/year
c) 5.4×10^{24} J/year d) 2.1×10^{24} J/year

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING
Energy Conversion Systems (BTN02614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
 2) Assume suitable data if required.
 3) Use of scientific calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Drive an expression of Carnot cycle. **07**
 - b) Drive an expression of Brayton cycle. **07**
- Q.3 Solve:**
- a) Classify in details of different types of Batteries. **07**
 - b) Explain in details construction and working of Lithium Ion Batteries. **07**
- Q.4 Solve:**
- a) Describe Thermionic convertor with neat sketches. **07**
 - b) Write a short note on types of Thermoelectric Convertor. **07**

Section – II

- Q.5 Solve:**
- a) Describe Thermodynamics and kinetics processes of fuel Fuel cells. **07**
 - b) Write in details of types of Fuel cells. **07**
- Q.6 Solve:**
- a) Explain Electrical & Thermal energy storage technology with neat sketch. **07**
 - b) Describe in details of Chemical energy storage. **07**
- Q.7 Solve:**
- a) Explain in details of solar photovoltaic systems. **07**
 - b) Describe in details Construction and working of solar cell. **07**

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Number of cells connected in series provide a _____.
a) High current carrying capacity b) Higher Voltage
c) Higher power d) None of the above
- 2) Battery container should be acid resistance therefore it is made up of _____.
a) Glass b) Plastic
c) Wood d) All of the above
- 3) _____ the best indication of the state of charge of a battery.
a) Temperature of electrolyte b) Specific gravity of electrolyte
c) Level of electrolyte d) Colour of electrolyte
- 4) _____ avoids the direct contact of the positive and negative plate in a lithium-ion battery?
a) Electrolyte b) Separator
c) Load d) Rectifier
- 5) Which is the electrolyte used in Li-ion battery?
a) Lead dioxide b) Lithium-based gel
c) Sulfur dioxide d) Cobalt
- 6) Battery is a device which converts chemical energy into _____.
a) Mechanical energy b) potential energy
c) Electrical energy d) Wind energy
- 7) It is noticed that during charging _____.
a) There is a rise in voltage
b) Energy is absorbed by the cell
c) Specific gravity of H₂ SO₄ is increased
d) All of the above
- 8) Overcharging _____.
a) Produces excessive gassing
b) Loosens the active material
c) Increases the temperature resulting in buckling of plates
d) All of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Answer any 2 questions from each section.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve the following.**
- a) Define the following:** **07**
- i) State of charge
 - ii) C-Rate
 - iii) Specific Energy Density
 - iv) Life cycles
 - v) Depth of Discharge
 - vi) Usable capacity
 - vii) Energy capacity
- b) Explain parameters for EV battery selection.** **07**
- Q.3 Solve the following.**
- a) Explain LMO and LTO battery chemistries.** **07**
- b) Explain various cell failures.** **07**
- Q.4 Solve the following.**
- a) Explain Lithium-Polymer battery with neat sketch.** **07**
- b) Explain Lithium-air battery with neat sketch.** **07**

Section – II

- Q.5 Solve the following.**
- a) Explain forces acting on battery pack with neat sketch.** **07**
- b) Explain Battery Pack Development Process.** **07**
- Q.6 Solve the following.**
- a) Explain the battery management system.** **07**
- b) Explain why thermal management of battery pack is important?** **07**
- Q.7 Solve the following.**
- a) Explain different EV Charging protocols.** **07**
- b) Explain on-board, off-board chargers and slow and fast chargers.** **07**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Overcharging _____.
 - a) Produces excessive gassing
 - b) Loosens the active material
 - c) Increases the temperature resulting in buckling of plates
 - d) All of the above
- 2) The capacity of a battery is expressed in terms of _____.
 - a) Current rating
 - b) Voltage rating
 - c) Ampere hour rating
 - d) None of the above
- 3) Each cell has a vent cap _____.
 - a) To allow gases out when the cell is on charge
 - b) To add water to the cell if needed
 - c) To check the level of electrolyte
 - d) To do all above functions
- 4) Cell short circuit results in _____.
 - a) Low specific gravity electrolyte
 - b) Abnormal high-temperature
 - c) Reduced gassing on charge
 - d) All of the above
- 5) Internal resistance of a cell is reduced to by _____.
 - a) Using vent plug to permit gas formed during discharge
 - b) Increasing the plate area
 - c) Putting plates very close together
 - d) All of the above
- 6) Which of the following circuit is used for cooling of the lithium-ion battery?
 - a) Air conditioning
 - b) Heater circuit
 - c) Ignition circuit
 - d) EGR circuit
- 7) Which of the following is not an advantage of Lithium-ion battery?
 - a) High specific energy density
 - b) More expensive
 - c) Reliability
 - d) Lower self-discharge rate
- 8) Number of cells connected in series provide a _____.
 - a) High current carrying capacity
 - b) Higher Voltage
 - c) Higher power
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Answer any 2 questions from each section.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve the following.**
- a) **Define the following:** **07**
- i) State of charge
 - ii) C-Rate
 - iii) Specific Energy Density
 - iv) Life cycles
 - v) Depth of Discharge
 - vi) Usable capacity
 - vii) Energy capacity
- b) Explain parameters for EV battery selection. **07**
- Q.3 Solve the following.**
- a) Explain LMO and LTO battery chemistries. **07**
- b) Explain various cell failures. **07**
- Q.4 Solve the following.**
- a) Explain Lithium-Polymer battery with neat sketch. **07**
- b) Explain Lithium-air battery with neat sketch. **07**

Section – II

- Q.5 Solve the following.**
- a) Explain forces acting on battery pack with neat sketch. **07**
- b) Explain Battery Pack Development Process. **07**
- Q.6 Solve the following.**
- a) Explain the battery management system. **07**
- b) Explain why thermal management of battery pack is important? **07**
- Q.7 Solve the following.**
- a) Explain different EV Charging protocols. **07**
- b) Explain on-board, off-board chargers and slow and fast chargers. **07**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Cell short circuit results in _____.
 a) Low specific gravity electrolyte b) Abnormal high-temperature
 c) Reduced gassing on charge d) All of the above
- 2) Internal resistance of a cell is reduced to by _____.
 a) Using vent plug to permit gas formed during discharge
 b) Increasing the plate area
 c) Putting plates very close together
 d) All of the above
- 3) Which of the following circuit is used for cooling of the lithium-ion battery?
 a) Air conditioning b) Heater circuit
 c) Ignition circuit d) EGR circuit
- 4) Which of the following is not an advantage of Lithium-ion battery?
 a) High specific energy density b) More expensive
 c) Reliability d) Lower self-discharge rate
- 5) Number of cells connected in series provide a _____.
 a) High current carrying capacity b) Higher Voltage
 c) Higher power d) None of the above
- 6) Battery container should be acid resistance therefore it is made up of _____.
 a) Glass b) Plastic
 c) Wood d) All of the above
- 7) _____ the best indication of the state of charge of a battery.
 a) Temperature of electrolyte b) Specific gravity of electrolyte
 c) Level of electrolyte d) Colour of electrolyte
- 8) _____ avoids the direct contact of the positive and negative plate in a lithium-ion battery?
 a) Electrolyte b) Separator
 c) Load d) Rectifier
- 9) Which is the electrolyte used in Li-ion battery?
 a) Lead dioxide b) Lithium-based gel
 c) Sulfur dioxide d) Cobalt

- 10)** Battery is a device which converts chemical energy into _____.
a) Mechanical energy b) potential energy
c) Electrical energy d) Wind energy
- 11)** It is noticed that during charging _____.
a) There is a rise in voltage
b) Energy is absorbed by the cell
c) Specific gravity of H₂ SO₄ is increased
d) All of the above
- 12)** Overcharging _____.
a) Produces excessive gassing
b) Loosens the active material
c) Increases the temperature resulting in buckling of plates
d) All of the above
- 13)** The capacity of a battery is expressed in terms of _____.
a) Current rating b) Voltage rating
c) Ampere hour rating d) None of the above
- 14)** Each cell has a vent cap _____.
a) To allow gases out when the cell is on charge
b) To add water to the cell if needed
c) To check the level of electrolyte
d) To do all above functions

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Answer any 2 questions from each section.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve the following.**
- a) Define the following:** **07**
- i) State of charge
 - ii) C-Rate
 - iii) Specific Energy Density
 - iv) Life cycles
 - v) Depth of Discharge
 - vi) Usable capacity
 - vii) Energy capacity
- b) Explain parameters for EV battery selection.** **07**
- Q.3 Solve the following.**
- a) Explain LMO and LTO battery chemistries.** **07**
- b) Explain various cell failures.** **07**
- Q.4 Solve the following.**
- a) Explain Lithium-Polymer battery with neat sketch.** **07**
- b) Explain Lithium-air battery with neat sketch.** **07**

Section – II

- Q.5 Solve the following.**
- a) Explain forces acting on battery pack with neat sketch.** **07**
- b) Explain Battery Pack Development Process.** **07**
- Q.6 Solve the following.**
- a) Explain the battery management system.** **07**
- b) Explain why thermal management of battery pack is important?** **07**
- Q.7 Solve the following.**
- a) Explain different EV Charging protocols.** **07**
- b) Explain on-board, off-board chargers and slow and fast chargers.** **07**

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Battery is a device which converts chemical energy into _____.
 - a) Mechanical energy
 - b) potential energy
 - c) Electrical energy
 - d) Wind energy
- 2) It is noticed that during charging _____.
 - a) There is a rise in voltage
 - b) Energy is absorbed by the cell
 - c) Specific gravity of H₂ SO₄ is increased
 - d) All of the above
- 3) Overcharging _____.
 - a) Produces excessive gassing
 - b) Loosens the active material
 - c) Increases the temperature resulting in buckling of plates
 - d) All of the above
- 4) The capacity of a battery is expressed in terms of _____.
 - a) Current rating
 - b) Voltage rating
 - c) Ampere hour rating
 - d) None of the above
- 5) Each cell has a vent cap _____.
 - a) To allow gases out when the cell is on charge
 - b) To add water to the cell if needed
 - c) To check the level of electrolyte
 - d) To do all above functions
- 6) Cell short circuit results in _____.
 - a) Low specific gravity electrolyte
 - b) Abnormal high-temperature
 - c) Reduced gassing on charge
 - d) All of the above
- 7) Internal resistance of a cell is reduced to by _____.
 - a) Using vent plug to permit gas formed during discharge
 - b) Increasing the plate area
 - c) Putting plates very close together
 - d) All of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
MECHANICAL ENGINEERING

Battery Technology and Charging Infrastructure (BTN02615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Answer any 2 questions from each section.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve the following.**
- a) **Define the following:** **07**
- i) State of charge
 - ii) C-Rate
 - iii) Specific Energy Density
 - iv) Life cycles
 - v) Depth of Discharge
 - vi) Usable capacity
 - vii) Energy capacity
- b) Explain parameters for EV battery selection. **07**
- Q.3 Solve the following.**
- a) Explain LMO and LTO battery chemistries. **07**
- b) Explain various cell failures. **07**
- Q.4 Solve the following.**
- a) Explain Lithium-Polymer battery with neat sketch. **07**
- b) Explain Lithium-air battery with neat sketch. **07**

Section – II

- Q.5 Solve the following.**
- a) Explain forces acting on battery pack with neat sketch. **07**
- b) Explain Battery Pack Development Process. **07**
- Q.6 Solve the following.**
- a) Explain the battery management system. **07**
- b) Explain why thermal management of battery pack is important? **07**
- Q.7 Solve the following.**
- a) Explain different EV Charging protocols. **07**
- b) Explain on-board, off-board chargers and slow and fast chargers. **07**

Seat No.	
-------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A reversible Carnot cycle used for refrigeration comprises _____.
 - a) Two isentropic and two adiabatic processes
 - b) Two isentropic and two constant volume processes
 - c) Two isentropic and two constant pressure process
 - d) Two isentropic and two isothermal processes
- 2) In Lithium-Bromide absorption system _____.
 - a) Lithium-bromide used as refrigerant and water as absorbent
 - b) Ammonia used as refrigerant and Lithium- Bromide as absorbent
 - c) Water used as refrigerant and Lithium-Bromide as absorbent
 - d) None of the above
- 3) Linde system for liquefaction of air is also known as _____.
 - a) Hampson system
 - b) Cascade system
 - c) Claude system
 - d) Carnot system
- 4) For rectangular duct, the aspect ratio is equal to _____.
 - a) Sum of longer and shorter side
 - b) Ratio of longer to shorter side
 - c) Product of longer and shorter side
 - d) Difference of longer and shorter side
- 5) The difference between dry bulb temperature and wet bulb temperature, is called _____.
 - a) dry bulb depression
 - b) wet bulb depression
 - c) dew point depression
 - d) degree of saturation
- 6) In a psychrometric process, the sensible heat added is 30 kJ/s and the latent heat added is 20 kJ/s. The sensible heat factor for the process will be _____.
 - a) 0.6
 - b) 0.3
 - c) 0.67
 - d) 1.5

- 7) What is the process carried out in generator of vapour absorption refrigeration cycle?
- weak solution of ammonia in water is heated
 - strong solution of ammonia in water is heated
 - only water is heated and heat is given to the ammonia to form its vapour
 - None of the above
- 8) The Freon group of refrigerants are also called as _____.
- Azeotrope refrigerants
 - Inorganic refrigerants
 - Hydro-carbon refrigerants
 - Halo-carbon refrigerants
- 9) The conditioned air supplied to the room must have the capacity to take up _____.
- Room sensible heat load only
 - Both room sensible heat and latent heat loads
 - Room latent heat load only
 - None of the above
- 10) Rectangular ducts are generally preferred over circular ducts in buildings as _____.
- For a given flow rate, the pressure drop is less compared to a circular Duct
 - Rectangular ducts match well with building profile
 - For a given pressure drop, it requires less material compared to a circular duct
 - Rectangular ducts are easier to fabricate
- 11) Absorption of the refrigerant by the absorbent in a vapour absorption refrigeration system is accompanied by _____.
- Release of heat
 - No thermal effects
 - Absorption of heat
 - Reduction in volume
- 12) During Sensible Cooling of air, the wet bulb temperature _____.
- Increases
 - Decreases
 - Remains same
 - Can't predict
- 13) The temperature at which moisture in air starts condensing is known as _____.
- Dry bulb temperature
 - Dew point temperature
 - Super dry temperature
 - Wet bulb temperature
- 14) CFC based refrigerants are being replaced as they are found to _____.
- React with several materials of construction
 - Consume more energy
 - Cause ozone layer depletion
 - Expensive

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve ANY TWO questions from each section of remaining questions.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of Refrigerant property tables, Psychrometric chart and programmable calculator is allowed.

Section – I

- Q.2** a) State desirable properties of refrigerants. **05**
 b) An air refrigerator operates between pressure limits of 1 bar and 5 bar on Bell Coleman Cycle. Its initial temperature is 10°C and after compression the air is cooled up to 20°C. Determine the theoretical COP and net refrigerating effect.
 Take $c_p = 1.005 \text{ KJ/Kg K}$ and $c_v = 0.718 \text{ KJ/Kg K}$ **05**
 c) Explain with the help of neat diagram Electrolux Refrigeration System. **04**
- Q.3** a) Explain Li-Br absorption system with the help of neat diagram. **05**
 b) State the difference between VCRS & VARS. **05**
 c) Describe the Vapour Compression Refrigeration System with the help of neat diagram. **04**
- Q.4** a) A vapour compression refrigerator works between the pressure limits of 60 bar and 25 bar. The working fluid is just dry at the end of compression and there is no under-cooling of the liquid before the expansion valve. Determine:
 i) C.O.P of the cycle;
 ii) Dryness Fraction of refrigerant at the inlet of compressor;
 iii) Capacity of refrigerator in KW and in TR, if the fluid flow is at the rate of 5 kg/min.
- | Pressure (bar) | Saturation Temperature (K) | Enthalpy (KJ/Kg) | | Entropy (KJ/Kg K) | |
|----------------|----------------------------|------------------|--------|-------------------|--------|
| | | Liquid | Vapour | Liquid | Vapour |
| 60 | 295 | 151.96 | 293.29 | 0.554 | 1.0332 |
| 25 | 261 | 56.32 | 322.58 | 0.226 | 1.2464 |
- b) Explain Linde system for liquefaction of air with neat sketch. **06**

Section – II

- Q.5** a) Derive an expression for Equivalent diameter of rectangular duct for equal discharge and equal velocity through both ducts. **05**
b) Write a short note on BPF. **05**
c) State and explain the factors affecting human comfort. **04**
- Q.6** a) Explain different types of pressures in ducts. **05**
b) Define the following: **05**
i) DPT
ii) Relative Humidity
iii) SHF
iv) WBD
v) GSHF
c) Explain the factors forming load on refrigeration & air conditioning systems. **04**
- Q.7** a) On a particular day, the atmospheric air was found to have dry bulb temperature of 30°C and a wet bulb temperature of 18°C. The barometric pressure was observed to be 756mm of Hg. Determine relative humidity, specific humidity, dew point temperature and enthalpy of air per Kg of dry air. **08**
b) Explain Chilled water systems and DX water systems. **06**

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The Freon group of refrigerants are also called as _____.
 - a) Azeotrope refrigerants
 - b) Inorganic refrigerants
 - c) Hydro-carbon refrigerants
 - d) Halo-carbon refrigerants
- 2) The conditioned air supplied to the room must have the capacity to take up _____.
 - a) Room sensible heat load only
 - b) Both room sensible heat and latent heat loads
 - c) Room latent heat load only
 - d) None of the above
- 3) Rectangular ducts are generally preferred over circular ducts in buildings as _____.
 - a) For a given flow rate, the pressure drop is less compared to a circular Duct
 - b) Rectangular ducts match well with building profile
 - c) For a given pressure drop, it requires less material compared to a circular duct
 - d) Rectangular ducts are easier to fabricate
- 4) Absorption of the refrigerant by the absorbent in a vapour absorption refrigeration system is accompanied by _____.
 - a) Release of heat
 - b) No thermal effects
 - c) Absorption of heat
 - d) Reduction in volume
- 5) During Sensible Cooling of air, the wet bulb temperature _____.
 - a) Increases
 - b) Decreases
 - c) Remains same
 - d) Can't predict
- 6) The temperature at which moisture in air starts condensing is known as _____.
 - a) Dry bulb temperature
 - b) Dew point temperature
 - c) Super dry temperature
 - d) Wet bulb temperature

- 7) CFC based refrigerants are being replaced as they are found to _____.
a) React with several materials of construction
b) Consume more energy
c) Cause ozone layer depletion
d) Expensive
- 8) A reversible Carnot cycle used for refrigeration comprises _____.
a) Two isentropic and two adiabatic processes
b) Two isentropic and two constant volume processes
c) Two isentropic and two constant pressure process
d) Two isentropic and two isothermal processes
- 9) In Lithium-Bromide absorption system _____.
a) Lithium-bromide used as refrigerant and water as absorbent
b) Ammonia used as refrigerant and Lithium- Bromide as absorbent
c) Water used as refrigerant and Lithium-Bromide as absorbent
d) None of the above
- 10) Linde system for liquefaction of air is also known as _____.
a) Hampson system
b) Cascade system
c) Claude system
d) Carnot system
- 11) For rectangular duct, the aspect ratio is equal to _____.
a) Sum of longer and shorter side
b) Ratio of longer to shorter side
c) Product of longer and shorter side
d) Difference of longer and shorter side
- 12) The difference between dry bulb temperature and wet bulb temperature, is called _____.
a) dry bulb depression
b) wet bulb depression
c) dew point depression
d) degree of saturation
- 13) In a psychrometric process, the sensible heat added is 30 kJ/s and the latent heat added is 20 kJ/s. The sensible heat factor for the process will be _____.
a) 0.6
b) 0.3
c) 0.67
d) 1.5
- 14) What is the process carried out in generator of vapour absorption refrigeration cycle?
a) weak solution of ammonia in water is heated
b) strong solution of ammonia in water is heated
c) only water is heated and heat is given to the ammonia to form its vapour
d) None of the above

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve ANY TWO questions from each section of remaining questions.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of Refrigerant property tables, Psychrometric chart and programmable calculator is allowed.

Section – I

- Q.2** a) State desirable properties of refrigerants. **05**
 b) An air refrigerator operates between pressure limits of 1 bar and 5 bar on Bell Coleman Cycle. Its initial temperature is 10°C and after compression the air is cooled up to 20°C. Determine the theoretical COP and net refrigerating effect.
 Take $c_p = 1.005 \text{ KJ/Kg K}$ and $c_v = 0.718 \text{ KJ/Kg K}$ **05**
 c) Explain with the help of neat diagram Electrolux Refrigeration System. **04**
- Q.3** a) Explain Li-Br absorption system with the help of neat diagram. **05**
 b) State the difference between VCRS & VARS. **05**
 c) Describe the Vapour Compression Refrigeration System with the help of neat diagram. **04**
- Q.4** a) A vapour compression refrigerator works between the pressure limits of 60 bar and 25 bar. The working fluid is just dry at the end of compression and there is no under-cooling of the liquid before the expansion valve. Determine:
 i) C.O.P of the cycle;
 ii) Dryness Fraction of refrigerant at the inlet of compressor;
 iii) Capacity of refrigerator in KW and in TR, if the fluid flow is at the rate of 5 kg/min.
- | Pressure (bar) | Saturation Temperature (K) | Enthalpy (KJ/Kg) | | Entropy (KJ/Kg K) | |
|----------------|----------------------------|------------------|--------|-------------------|--------|
| | | Liquid | Vapour | Liquid | Vapour |
| 60 | 295 | 151.96 | 293.29 | 0.554 | 1.0332 |
| 25 | 261 | 56.32 | 322.58 | 0.226 | 1.2464 |
- b) Explain Linde system for liquefaction of air with neat sketch. **06**

Section – II

- Q.5** a) Derive an expression for Equivalent diameter of rectangular duct for equal discharge and equal velocity through both ducts. **05**
b) Write a short note on BPF. **05**
c) State and explain the factors affecting human comfort. **04**
- Q.6** a) Explain different types of pressures in ducts. **05**
b) Define the following: **05**
i) DPT
ii) Relative Humidity
iii) SHF
iv) WBD
v) GSHF
c) Explain the factors forming load on refrigeration & air conditioning systems. **04**
- Q.7** a) On a particular day, the atmospheric air was found to have dry bulb temperature of 30°C and a wet bulb temperature of 18°C. The barometric pressure was observed to be 756mm of Hg. Determine relative humidity, specific humidity, dew point temperature and enthalpy of air per Kg of dry air. **08**
b) Explain Chilled water systems and DX water systems. **06**

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Absorption of the refrigerant by the absorbent in a vapour absorption refrigeration system is accompanied by _____.
 - a) Release of heat
 - b) No thermal effects
 - c) Absorption of heat
 - d) Reduction in volume
- 2) During Sensible Cooling of air, the wet bulb temperature _____.
 - a) Increases
 - b) Decreases
 - c) Remains same
 - d) Can't predict
- 3) The temperature at which moisture in air starts condensing is known as _____.
 - a) Dry bulb temperature
 - b) Dew point temperature
 - c) Super dry temperature
 - d) Wet bulb temperature
- 4) CFC based refrigerants are being replaced as they are found to _____.
 - a) React with several materials of construction
 - b) Consume more energy
 - c) Cause ozone layer depletion
 - d) Expensive
- 5) A reversible Carnot cycle used for refrigeration comprises _____.
 - a) Two isentropic and two adiabatic processes
 - b) Two isentropic and two constant volume processes
 - c) Two isentropic and two constant pressure process
 - d) Two isentropic and two isothermal processes
- 6) In Lithium-Bromide absorption system _____.
 - a) Lithium-bromide used as refrigerant and water as absorbent
 - b) Ammonia used as refrigerant and Lithium- Bromide as absorbent
 - c) Water used as refrigerant and Lithium-Bromide as absorbent
 - d) None of the above
- 7) Linde system for liquefaction of air is also known as _____.
 - a) Hampson system
 - b) Cascade system
 - c) Claude system
 - d) Carnot system

- 8) For rectangular duct, the aspect ratio is equal to _____.
a) Sum of longer and shorter side
b) Ratio of longer to shorter side
c) Product of longer and shorter side
d) Difference of longer and shorter side
- 9) The difference between dry bulb temperature and wet bulb temperature, is called _____.
a) dry bulb depression
b) wet bulb depression
c) dew point depression
d) degree of saturation
- 10) In a psychrometric process, the sensible heat added is 30 kJ/s and the latent heat added is 20 kJ/s. The sensible heat factor for the process will be _____.
a) 0.6
b) 0.3
c) 0.67
d) 1.5
- 11) What is the process carried out in generator of vapour absorption refrigeration cycle?
a) weak solution of ammonia in water is heated
b) strong solution of ammonia in water is heated
c) only water is heated and heat is given to the ammonia to form its vapour
d) None of the above
- 12) The Freon group of refrigerants are also called as _____.
a) Azeotrope refrigerants
b) Inorganic refrigerants
c) Hydro-carbon refrigerants
d) Halo-carbon refrigerants
- 13) The conditioned air supplied to the room must have the capacity to take up _____.
a) Room sensible heat load only
b) Both room sensible heat and latent heat loads
c) Room latent heat load only
d) None of the above
- 14) Rectangular ducts are generally preferred over circular ducts in buildings as _____.
a) For a given flow rate, the pressure drop is less compared to a circular Duct
b) Rectangular ducts match well with building profile
c) For a given pressure drop, it requires less material compared to a circular duct
d) Rectangular ducts are easier to fabricate

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve ANY TWO questions from each section of remaining questions.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of Refrigerant property tables, Psychrometric chart and programmable calculator is allowed.

Section – I

- Q.2** a) State desirable properties of refrigerants. **05**
 b) An air refrigerator operates between pressure limits of 1 bar and 5 bar on Bell Coleman Cycle. Its initial temperature is 10°C and after compression the air is cooled up to 20°C. Determine the theoretical COP and net refrigerating effect. **05**
 Take $c_p = 1.005 \text{ KJ/Kg K}$ and $c_v = 0.718 \text{ KJ/Kg K}$
 c) Explain with the help of neat diagram Electrolux Refrigeration System. **04**
- Q.3** a) Explain Li-Br absorption system with the help of neat diagram. **05**
 b) State the difference between VCRS & VARS. **05**
 c) Describe the Vapour Compression Refrigeration System with the help of neat diagram. **04**
- Q.4** a) A vapour compression refrigerator works between the pressure limits of 60 bar and 25 bar. The working fluid is just dry at the end of compression and there is no under-cooling of the liquid before the expansion valve. Determine: **08**
 i) C.O.P of the cycle;
 ii) Dryness Fraction of refrigerant at the inlet of compressor;
 iii) Capacity of refrigerator in KW and in TR, if the fluid flow is at the rate of 5 kg/min.
- | Pressure (bar) | Saturation Temperature (K) | Enthalpy (KJ/Kg) | | Entropy (KJ/Kg K) | |
|----------------|----------------------------|------------------|--------|-------------------|--------|
| | | Liquid | Vapour | Liquid | Vapour |
| 60 | 295 | 151.96 | 293.29 | 0.554 | 1.0332 |
| 25 | 261 | 56.32 | 322.58 | 0.226 | 1.2464 |
- b) Explain Linde system for liquefaction of air with neat sketch. **06**

Section – II

- Q.5** a) Derive an expression for Equivalent diameter of rectangular duct for equal discharge and equal velocity through both ducts. **05**
b) Write a short note on BPF. **05**
c) State and explain the factors affecting human comfort. **04**
- Q.6** a) Explain different types of pressures in ducts. **05**
b) Define the following: **05**
i) DPT
ii) Relative Humidity
iii) SHF
iv) WBD
v) GSHF
c) Explain the factors forming load on refrigeration & air conditioning systems. **04**
- Q.7** a) On a particular day, the atmospheric air was found to have dry bulb temperature of 30°C and a wet bulb temperature of 18°C. The barometric pressure was observed to be 756mm of Hg. Determine relative humidity, specific humidity, dew point temperature and enthalpy of air per Kg of dry air. **08**
b) Explain Chilled water systems and DX water systems. **06**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In a psychrometric process, the sensible heat added is 30 kJ/s and the latent heat added is 20 kJ/s. The sensible heat factor for the process will be _____.

a) 0.6	b) 0.3
c) 0.67	d) 1.5
- 2) What is the process carried out in generator of vapour absorption refrigeration cycle?
 - a) weak solution of ammonia in water is heated
 - b) strong solution of ammonia in water is heated
 - c) only water is heated and heat is given to the ammonia to form its vapour
 - d) None of the above
- 3) The Freon group of refrigerants are also called as _____.

a) Azeotrope refrigerants	b) Inorganic refrigerants
c) Hydro-carbon refrigerants	d) Halo-carbon refrigerants
- 4) The conditioned air supplied to the room must have the capacity to take up _____.
 - a) Room sensible heat load only
 - b) Both room sensible heat and latent heat loads
 - c) Room latent heat load only
 - d) None of the above
- 5) Rectangular ducts are generally preferred over circular ducts in buildings as _____.
 - a) For a given flow rate, the pressure drop is less compared to a circular Duct
 - b) Rectangular ducts match well with building profile
 - c) For a given pressure drop, it requires less material compared to a circular duct
 - d) Rectangular ducts are easier to fabricate

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (BTN02701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve ANY TWO questions from each section of remaining questions.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of Refrigerant property tables, Psychrometric chart and programmable calculator is allowed.

Section – I

- Q.2** a) State desirable properties of refrigerants. **05**
 b) An air refrigerator operates between pressure limits of 1 bar and 5 bar on Bell Coleman Cycle. Its initial temperature is 10°C and after compression the air is cooled up to 20°C. Determine the theoretical COP and net refrigerating effect. **05**
 Take $c_p = 1.005 \text{ KJ/Kg K}$ and $c_v = 0.718 \text{ KJ/Kg K}$
 c) Explain with the help of neat diagram Electrolux Refrigeration System. **04**
- Q.3** a) Explain Li-Br absorption system with the help of neat diagram. **05**
 b) State the difference between VCRS & VARS. **05**
 c) Describe the Vapour Compression Refrigeration System with the help of neat diagram. **04**
- Q.4** a) A vapour compression refrigerator works between the pressure limits of 60 bar and 25 bar. The working fluid is just dry at the end of compression and there is no under-cooling of the liquid before the expansion valve. Determine:
 i) C.O.P of the cycle;
 ii) Dryness Fraction of refrigerant at the inlet of compressor;
 iii) Capacity of refrigerator in KW and in TR, if the fluid flow is at the rate of 5 kg/min. **08**
- | Pressure (bar) | Saturation Temperature (K) | Enthalpy (KJ/Kg) | | Entropy (KJ/Kg K) | |
|----------------|----------------------------|------------------|--------|-------------------|--------|
| | | Liquid | Vapour | Liquid | Vapour |
| 60 | 295 | 151.96 | 293.29 | 0.554 | 1.0332 |
| 25 | 261 | 56.32 | 322.58 | 0.226 | 1.2464 |
- b) Explain Linde system for liquefaction of air with neat sketch. **06**

Section – II

- Q.5** a) Derive an expression for Equivalent diameter of rectangular duct for equal discharge and equal velocity through both ducts. **05**
b) Write a short note on BPF. **05**
c) State and explain the factors affecting human comfort. **04**
- Q.6** a) Explain different types of pressures in ducts. **05**
b) Define the following: **05**
i) DPT
ii) Relative Humidity
iii) SHF
iv) WBD
v) GSHF
c) Explain the factors forming load on refrigeration & air conditioning systems. **04**
- Q.7** a) On a particular day, the atmospheric air was found to have dry bulb temperature of 30°C and a wet bulb temperature of 18°C. The barometric pressure was observed to be 756mm of Hg. Determine relative humidity, specific humidity, dew point temperature and enthalpy of air per Kg of dry air. **08**
b) Explain Chilled water systems and DX water systems. **06**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Use of non-programmable calculator is allowed.
 4) Assume suitable data if necessary.
 5) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) What does the term "horsepower" measure in the context of automobiles?
 - a) The number of horses used to pull the car
 - b) Engine power and performance
 - c) Maximum speed
 - d) Tire pressure

- 2) What safety feature in automobiles is designed to inflate during a collision to protect the occupants?

a) Seat belt	b) Airbag
c) GPS	d) Cup holder

- 3) What does 0-60 mph time measure in a car's performance?

a) Top speed	b) Acceleration
c) Fuel efficiency	d) Handling

- 4) Which component of an automobile's performance is affected by its weight distribution?

a) Fuel efficiency	b) Acceleration
c) Top speed	d) Traction

- 5) Which type of transmission allows for manual gear changes without a clutch pedal?
 - a) Automatic transmission
 - b) Continuously Variable Transmission (CVT)
 - c) Semi-automatic transmission
 - d) Dual-clutch transmission

- 6) In an automatic transmission, what is responsible for changing gears automatically?

a) Clutch pedal	b) Gear lever
c) Torque converter	d) Drive shaft

- 7) What is the primary purpose of a differential in a car's transmission system?
- a) To control the steering
 - b) To distribute power evenly to all wheels
 - c) To help with braking
 - d) To adjust the suspension
- 8) Which type of steering system requires the driver to exert more effort to turn the wheel, especially at low speeds?
- a) Hydraulic power steering
 - b) Manual steering
 - c) Electric power steering
 - d) Rack and pinion steering
- 9) What component in the steering system is responsible for converting the rotational motion of the steering wheel into lateral movement of the tires?
- a) Suspension system
 - b) Steering column
 - c) Rack and pinion
 - d) Brake pads
- 10) In a typical braking system, which component is responsible for applying friction to the brake rotors to slow down the vehicle?
- a) Brake pedal
 - b) Brake master cylinder
 - c) Brake pads
 - d) Brake booster
- 11) What is the purpose of an anti-lock braking system (ABS)?
- a) To increase braking efficiency
 - b) To prevent skidding and maintain steering control during hard braking
 - c) To reduce fuel consumption
 - d) To provide a smoother ride
- 12) What is the primary advantage of regenerative brakes in hybrid and electric vehicles?
- a) Shorter stopping distance
 - b) Increased brake pad longevity
 - c) Energy recovery and improved fuel efficiency
 - d) Quieter braking operation
- 13) What is the main function of a car's suspension system?
- a) Improve fuel efficiency
 - b) Provide a comfortable ride
 - c) Enhance engine performance
 - d) Reduce tire wear
- 14) Which type of suspension system uses a combination of springs and shock absorbers?
- a) MacPherson strut
 - b) Independent rear suspension
 - c) Leaf spring
 - d) Torsion bar

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Assume suitable data if necessary.
 3) Use of non-programmable calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2** a) Explain the basic components of an automobile and their functions. **08**
 b) Enlist and define all types of bodies in an automobile. **06**
- Q.3** a) A truck weighs 100111 N and the engine develops 97 kW at 2400 rpm. The transmission efficiency is 90% in top gear of 3.4:1 and 85% in third gear of 8.4:1. The performance of the vehicle is such that it will just reach a speed of 86.8 km/h at 2400 rpm at wide open throttle when running on the level in still air, and at the same engine speed in third gear it will just climb a gradient of 1 in 14. If the total resistance in N is given by the formula, $R = KW + KaAV^2 + W \sin \theta$, where A is in m^2 ; V in km/h and W in N, calculate K and K_a and hence the engine power required for climbing a grade of 1 in 40 at 48 km/h in top gear. How much more weight can be added to the vehicle to use the engine power fully under the above condition. Front area of truck = $5.575 m^2$. **10**
 b) Obtain the expression for acceleration and gradability in terms of tractive effort and total resistance. **04**
- Q.4** a) Describe the functions of a torque converter in an automatic transmission system. **08**
 b) Discuss the importance of a synchromesh gearbox in manual transmissions. **06**

Section – II

- Q.5** a) Describe with neat sketch the components and operation of a rack and pinion steering system. **07**
 b) Explain with neat sketch the concept of power steering and how it enhances the driving experience. **07**
- Q.6** a) Discuss the principles of operation and benefits of anti-lock braking systems (ABC). **06**
 b) A motorcar weighs 13341.5 N and has a wheelbase of 2.65 m. The CG is 1.27 m behind the front axle and 0.76 m above the ground level. Maximum braking on all four wheels on level ground will bring the vehicle uniformly to rest from a speed of 64 km/h in a distance of 25.9 m. Calculate the value of an adhesion between the tyre and the road. **08**
 Under the same road condition, the vehicle descends a hill of gradient 1 in 20 and is braked on the front wheels only. Determine the load distributed between the front and rear wheels and the distance required to bring the car to rest.

- Q.7**
- a)** Compare and contrast leaf spring suspension and independent suspension systems in terms of ride comfort and handling. **05**
 - b)** Explain the importance of shock absorbers in maintaining a smooth and controlled ride. **04**
 - c)** Discuss the use of air suspension in various types of vehicles and its ability to adapt to different load conditions and driving situations. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Use of non-programmable calculator is allowed.
 4) Assume suitable data if necessary.
 5) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) Which type of steering system requires the driver to exert more effort to turn the wheel, especially at low speeds?
 - a) Hydraulic power steering
 - b) Manual steering
 - c) Electric power steering
 - d) Rack and pinion steering
- 2) What component in the steering system is responsible for converting the rotational motion of the steering wheel into lateral movement of the tires?
 - a) Suspension system
 - b) Steering column
 - c) Rack and pinion
 - d) Brake pads
- 3) In a typical braking system, which component is responsible for applying friction to the brake rotors to slow down the vehicle?
 - a) Brake pedal
 - b) Brake master cylinder
 - c) Brake pads
 - d) Brake booster
- 4) What is the purpose of an anti-lock braking system (ABS)?
 - a) To increase braking efficiency
 - b) To prevent skidding and maintain steering control during hard braking
 - c) To reduce fuel consumption
 - d) To provide a smoother ride
- 5) What is the primary advantage of regenerative brakes in hybrid and electric vehicles?
 - a) Shorter stopping distance
 - b) Increased brake pad longevity
 - c) Energy recovery and improved fuel efficiency
 - d) Quieter braking operation
- 6) What is the main function of a car's suspension system?
 - a) Improve fuel efficiency
 - b) Provide a comfortable ride
 - c) Enhance engine performance
 - d) Reduce tire wear

- 7) Which type of suspension system uses a combination of springs and shock absorbers?
- a) MacPherson strut
 - b) Independent rear suspension
 - c) Leaf spring
 - d) Torsion bar
- 8) What does the term "horsepower" measure in the context of automobiles?
- a) The number of horses used to pull the car
 - b) Engine power and performance
 - c) Maximum speed
 - d) Tire pressure
- 9) What safety feature in automobiles is designed to inflate during a collision to protect the occupants?
- a) Seat belt
 - b) Airbag
 - c) GPS
 - d) Cup holder
- 10) What does 0-60 mph time measure in a car's performance?
- a) Top speed
 - b) Acceleration
 - c) Fuel efficiency
 - d) Handling
- 11) Which component of an automobile's performance is affected by its weight distribution?
- a) Fuel efficiency
 - b) Acceleration
 - c) Top speed
 - d) Traction
- 12) Which type of transmission allows for manual gear changes without a clutch pedal?
- a) Automatic transmission
 - b) Continuously Variable Transmission (CVT)
 - c) Semi-automatic transmission
 - d) Dual-clutch transmission
- 13) In an automatic transmission, what is responsible for changing gears automatically?
- a) Clutch pedal
 - b) Gear lever
 - c) Torque converter
 - d) Drive shaft
- 14) What is the primary purpose of a differential in a car's transmission system?
- a) To control the steering
 - b) To distribute power evenly to all wheels
 - c) To help with braking
 - d) To adjust the suspension

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Assume suitable data if necessary.
 3) Use of non-programmable calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2** a) Explain the basic components of an automobile and their functions. **08**
 b) Enlist and define all types of bodies in an automobile. **06**
- Q.3** a) A truck weighs 100111 N and the engine develops 97 kW at 2400 rpm. The transmission efficiency is 90% in top gear of 3.4:1 and 85% in third gear of 8.4:1. The performance of the vehicle is such that it will just reach a speed of 86.8 km/h at 2400 rpm at wide open throttle when running on the level in still air, and at the same engine speed in third gear it will just climb a gradient of 1 in 14. If the total resistance in N is given by the formula, $R = KW + KaAV^2 + W \sin \theta$, where A is in m^2 ; V in km/h and W in N, calculate K and K_a and hence the engine power required for climbing a grade of 1 in 40 at 48 km/h in top gear. How much more weight can be added to the vehicle to use the engine power fully under the above condition. Front area of truck = $5.575 m^2$. **10**
 b) Obtain the expression for acceleration and gradability in terms of tractive effort and total resistance. **04**
- Q.4** a) Describe the functions of a torque converter in an automatic transmission system. **08**
 b) Discuss the importance of a synchromesh gearbox in manual transmissions. **06**

Section – II

- Q.5** a) Describe with neat sketch the components and operation of a rack and pinion steering system. **07**
 b) Explain with neat sketch the concept of power steering and how it enhances the driving experience. **07**
- Q.6** a) Discuss the principles of operation and benefits of anti-lock braking systems (ABC). **06**
 b) A motorcar weighs 13341.5 N and has a wheelbase of 2.65 m. The CG is 1.27 m behind the front axle and 0.76 m above the ground level. Maximum braking on all four wheels on level ground will bring the vehicle uniformly to rest from a speed of 64 km/h in a distance of 25.9 m. Calculate the value of an adhesion between the tyre and the road. **08**
 Under the same road condition, the vehicle descends a hill of gradient 1 in 20 and is braked on the front wheels only. Determine the load distributed between the front and rear wheels and the distance required to bring the car to rest.

- Q.7**
- a)** Compare and contrast leaf spring suspension and independent suspension systems in terms of ride comfort and handling. **05**
 - b)** Explain the importance of shock absorbers in maintaining a smooth and controlled ride. **04**
 - c)** Discuss the use of air suspension in various types of vehicles and its ability to adapt to different load conditions and driving situations. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Use of non-programmable calculator is allowed.
 4) Assume suitable data if necessary.
 5) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) What is the purpose of an anti-lock braking system (ABS)?
 - a) To increase braking efficiency
 - b) To prevent skidding and maintain steering control during hard braking
 - c) To reduce fuel consumption
 - d) To provide a smoother ride

- 2) What is the primary advantage of regenerative brakes in hybrid and electric vehicles?
 - a) Shorter stopping distance
 - b) Increased brake pad longevity
 - c) Energy recovery and improved fuel efficiency
 - d) Quieter braking operation

- 3) What is the main function of a car's suspension system?
 - a) Improve fuel efficiency
 - b) Provide a comfortable ride
 - c) Enhance engine performance
 - d) Reduce tire wear

- 4) Which type of suspension system uses a combination of springs and shock absorbers?
 - a) MacPherson strut
 - b) Independent rear suspension
 - c) Leaf spring
 - d) Torsion bar

- 5) What does the term "horsepower" measure in the context of automobiles?
 - a) The number of horses used to pull the car
 - b) Engine power and performance
 - c) Maximum speed
 - d) Tire pressure

- 6) What safety feature in automobiles is designed to inflate during a collision to protect the occupants?
 - a) Seat belt
 - b) Airbag
 - c) GPS
 - d) Cup holder

- 7) What does 0-60 mph time measure in a car's performance?
a) Top speed
b) Acceleration
c) Fuel efficiency
d) Handling
- 8) Which component of an automobile's performance is affected by its weight distribution?
a) Fuel efficiency
b) Acceleration
c) Top speed
d) Traction
- 9) Which type of transmission allows for manual gear changes without a clutch pedal?
a) Automatic transmission
b) Continuously Variable Transmission (CVT)
c) Semi-automatic transmission
d) Dual-clutch transmission
- 10) In an automatic transmission, what is responsible for changing gears automatically?
a) Clutch pedal
b) Gear lever
c) Torque converter
d) Drive shaft
- 11) What is the primary purpose of a differential in a car's transmission system?
a) To control the steering
b) To distribute power evenly to all wheels
c) To help with braking
d) To adjust the suspension
- 12) Which type of steering system requires the driver to exert more effort to turn the wheel, especially at low speeds?
a) Hydraulic power steering
b) Manual steering
c) Electric power steering
d) Rack and pinion steering
- 13) What component in the steering system is responsible for converting the rotational motion of the steering wheel into lateral movement of the tires?
a) Suspension system
b) Steering column
c) Rack and pinion
d) Brake pads
- 14) In a typical braking system, which component is responsible for applying friction to the brake rotors to slow down the vehicle?
a) Brake pedal
b) Brake master cylinder
c) Brake pads
d) Brake booster

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Assume suitable data if necessary.
 3) Use of non-programmable calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2** a) Explain the basic components of an automobile and their functions. **08**
 b) Enlist and define all types of bodies in an automobile. **06**
- Q.3** a) A truck weighs 100111 N and the engine develops 97 kW at 2400 rpm. The transmission efficiency is 90% in top gear of 3.4:1 and 85% in third gear of 8.4:1. The performance of the vehicle is such that it will just reach a speed of 86.8 km/h at 2400 rpm at wide open throttle when running on the level in still air, and at the same engine speed in third gear it will just climb a gradient of 1 in 14. If the total resistance in N is given by the formula, $R = KW + KaAV^2 + W \sin \theta$, where A is in m^2 ; V in km/h and W in N, calculate K and K_a and hence the engine power required for climbing a grade of 1 in 40 at 48 km/h in top gear. How much more weight can be added to the vehicle to use the engine power fully under the above condition. Front area of truck = $5.575 m^2$. **10**
 b) Obtain the expression for acceleration and gradability in terms of tractive effort and total resistance. **04**
- Q.4** a) Describe the functions of a torque converter in an automatic transmission system. **08**
 b) Discuss the importance of a synchromesh gearbox in manual transmissions. **06**

Section – II

- Q.5** a) Describe with neat sketch the components and operation of a rack and pinion steering system. **07**
 b) Explain with neat sketch the concept of power steering and how it enhances the driving experience. **07**
- Q.6** a) Discuss the principles of operation and benefits of anti-lock braking systems (ABC). **06**
 b) A motorcar weighs 13341.5 N and has a wheelbase of 2.65 m. The CG is 1.27 m behind the front axle and 0.76 m above the ground level. Maximum braking on all four wheels on level ground will bring the vehicle uniformly to rest from a speed of 64 km/h in a distance of 25.9 m. Calculate the value of an adhesion between the tyre and the road. **08**
 Under the same road condition, the vehicle descends a hill of gradient 1 in 20 and is braked on the front wheels only. Determine the load distributed between the front and rear wheels and the distance required to bring the car to rest.

- Q.7**
- a)** Compare and contrast leaf spring suspension and independent suspension systems in terms of ride comfort and handling. **05**
 - b)** Explain the importance of shock absorbers in maintaining a smooth and controlled ride. **04**
 - c)** Discuss the use of air suspension in various types of vehicles and its ability to adapt to different load conditions and driving situations. **05**

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Use of non-programmable calculator is allowed.
 - 4) Assume suitable data if necessary.
 - 5) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) In an automatic transmission, what is responsible for changing gears automatically?

a) Clutch pedal	b) Gear lever
c) Torque converter	d) Drive shaft
- 2) What is the primary purpose of a differential in a car's transmission system?
 - a) To control the steering
 - b) To distribute power evenly to all wheels
 - c) To help with braking
 - d) To adjust the suspension
- 3) Which type of steering system requires the driver to exert more effort to turn the wheel, especially at low speeds?

a) Hydraulic power steering	b) Manual steering
c) Electric power steering	d) Rack and pinion steering
- 4) What component in the steering system is responsible for converting the rotational motion of the steering wheel into lateral movement of the tires?

a) Suspension system	b) Steering column
c) Rack and pinion	d) Brake pads
- 5) In a typical braking system, which component is responsible for applying friction to the brake rotors to slow down the vehicle?

a) Brake pedal	b) Brake master cylinder
c) Brake pads	d) Brake booster
- 6) What is the purpose of an anti-lock braking system (ABS)?
 - a) To increase braking efficiency
 - b) To prevent skidding and maintain steering control during hard braking
 - c) To reduce fuel consumption
 - d) To provide a smoother ride

- 7) What is the primary advantage of regenerative brakes in hybrid and electric vehicles?
- a) Shorter stopping distance
 - b) Increased brake pad longevity
 - c) Energy recovery and improved fuel efficiency
 - d) Quieter braking operation
- 8) What is the main function of a car's suspension system?
- a) Improve fuel efficiency
 - b) Provide a comfortable ride
 - c) Enhance engine performance
 - d) Reduce tire wear
- 9) Which type of suspension system uses a combination of springs and shock absorbers?
- a) MacPherson strut
 - b) Independent rear suspension
 - c) Leaf spring
 - d) Torsion bar
- 10) What does the term "horsepower" measure in the context of automobiles?
- a) The number of horses used to pull the car
 - b) Engine power and performance
 - c) Maximum speed
 - d) Tire pressure
- 11) What safety feature in automobiles is designed to inflate during a collision to protect the occupants?
- a) Seat belt
 - b) Airbag
 - c) GPS
 - d) Cup holder
- 12) What does 0-60 mph time measure in a car's performance?
- a) Top speed
 - b) Acceleration
 - c) Fuel efficiency
 - d) Handling
- 13) Which component of an automobile's performance is affected by its weight distribution?
- a) Fuel efficiency
 - b) Acceleration
 - c) Top speed
 - d) Traction
- 14) Which type of transmission allows for manual gear changes without a clutch pedal?
- a) Automatic transmission
 - b) Continuously Variable Transmission (CVT)
 - c) Semi-automatic transmission
 - d) Dual-clutch transmission

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (BTN02702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Assume suitable data if necessary.
 3) Use of non-programmable calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2** a) Explain the basic components of an automobile and their functions. **08**
 b) Enlist and define all types of bodies in an automobile. **06**
- Q.3** a) A truck weighs 100111 N and the engine develops 97 kW at 2400 rpm. The transmission efficiency is 90% in top gear of 3.4:1 and 85% in third gear of 8.4:1. The performance of the vehicle is such that it will just reach a speed of 86.8 km/h at 2400 rpm at wide open throttle when running on the level in still air, and at the same engine speed in third gear it will just climb a gradient of 1 in 14. If the total resistance in N is given by the formula, $R = KW + KaAV^2 + W \sin \theta$, where A is in m^2 ; V in km/h and W in N, calculate K and K_a and hence the engine power required for climbing a grade of 1 in 40 at 48 km/h in top gear. How much more weight can be added to the vehicle to use the engine power fully under the above condition. Front area of truck = $5.575 m^2$. **10**
 b) Obtain the expression for acceleration and gradability in terms of tractive effort and total resistance. **04**
- Q.4** a) Describe the functions of a torque converter in an automatic transmission system. **08**
 b) Discuss the importance of a synchromesh gearbox in manual transmissions. **06**

Section – II

- Q.5** a) Describe with neat sketch the components and operation of a rack and pinion steering system. **07**
 b) Explain with neat sketch the concept of power steering and how it enhances the driving experience. **07**
- Q.6** a) Discuss the principles of operation and benefits of anti-lock braking systems (ABC). **06**
 b) A motorcar weighs 13341.5 N and has a wheelbase of 2.65 m. The CG is 1.27 m behind the front axle and 0.76 m above the ground level. Maximum braking on all four wheels on level ground will bring the vehicle uniformly to rest from a speed of 64 km/h in a distance of 25.9 m. Calculate the value of an adhesion between the tyre and the road. **08**
 Under the same road condition, the vehicle descends a hill of gradient 1 in 20 and is braked on the front wheels only. Determine the load distributed between the front and rear wheels and the distance required to bring the car to rest.

- Q.7**
- a)** Compare and contrast leaf spring suspension and independent suspension systems in terms of ride comfort and handling. **05**
 - b)** Explain the importance of shock absorbers in maintaining a smooth and controlled ride. **04**
 - c)** Discuss the use of air suspension in various types of vehicles and its ability to adapt to different load conditions and driving situations. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.

14

- 1) A robot _____ represents degree of freedom of a robot.
 - a) axis
 - b) payload
 - c) repeatability
 - d) weight
- 2) Repeatability of a robot is expressed in _____.
 - a) meters
 - b) microns
 - c) milli-meters
 - d) centi-meters
- 3) Cartesian robots are also called as _____ robots.
 - a) Rotary
 - b) Angular
 - c) Linear
 - d) Incremental
- 4) A _____ is a variable resistance device that expresses linear or angular displacements in terms of voltage.
 - a) Thermistor
 - b) Thermocouple
 - c) Potentiometer
 - d) LVDT
- 5) When asymmetrical, elastic crystals are deformed by a force, an electrical potential is developed within the distorted crystal lattice. This is called _____ effect
 - a) Hall
 - b) Piezo-electric
 - c) Strain Gauge
 - d) Faraday
- 6) Linear type of electric actuator is also called as _____.
 - a) Solenoid
 - b) Transformer
 - c) Resolver
 - d) None of the above
- 7) Which of the following are types of end effectors?
 - a) Grippers
 - b) Process Tools
 - c) Sensors
 - d) All of the above
- 8) _____ generates instant contrast as it creates dark silhouettes against a bright background.
 - a) Dark Field Lighting
 - b) Bright Field Lighting
 - c) Back Lighting
 - d) Diffused Lighting

- 9) CCD in camera sensors stands for _____.
a) Charge Coupled Device b) Compressed Charged Device
c) Changed Conductor Device d) Charged Conductor Diffusor
- 10) Line scan cameras have _____ of pixels for acquiring data very quickly.
a) Multiple Sets b) Multiple Rows
c) Rows and Column d) Single Row
- 11) Spot welding is the example of _____ task.
a) Continuous Curved Path b) Point to point path
c) Continuous Straight Path d) None of the above
- 12) A PLC is programmed by specifying some kinds of logic diagrams, called _____ diagrams.
a) Scattered b) Ladder
c) Intermediate d) Cascaded
- 13) Which of the following is the objective of using ASRS?
a) Increasing the storage capacity
b) Increasing the stock rotation
c) maximising floor space utilization
d) all of the above
- 14) _____ come in various formulations, including adhesives, silicone, polyurethane, and epoxy.
a) Sealants b) Paints
c) Sprayers d) Lubricants

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each sections.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Define robot and explain basic components of robots with functions. **07**
b) Explain different specifications of an industrial robot. **07**
- Q.3** a) What is use of encoders? Explain linear and rotary encoders used in robots. **07**
b) What is an end effector? Explain types of end effectors with applications. **07**
- Q.4** a) Explain difference between AGVs and AMRs. State types of AGVs. **07**
b) Derive forward kinematics equation for 2 DOF planar system. **07**

Section – II

- Q.5** a) What is machine vision? Explain major applications of machine vision. **07**
b) What is role of sensor in camera? Explain working of CCD and CMOS sensors. **07**
- Q.6** a) Why good robot work-cell design is important? Explain considerations in robot work cell design. **07**
b) Explain briefly different programming methods used for industrial robots. **07**
- Q.7** a) Explain considerations while selecting robot for spot welding. State various applications. **07**
b) What is an ASRS? Explain any 3 types of ASRS with examples. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.

14

- 1) _____ generates instant contrast as it creates dark silhouettes against a bright background.
 - a) Dark Field Lighting
 - b) Bright Field Lighting
 - c) Back Lighting
 - d) Diffused Lighting
- 2) CCD in camera sensors stands for _____.
 - a) Charge Coupled Device
 - b) Compressed Charged Device
 - c) Changed Conductor Device
 - d) Charged Conductor Diffusor
- 3) Line scan cameras have _____ of pixels for acquiring data very quickly.
 - a) Multiple Sets
 - b) Multiple Rows
 - c) Rows and Column
 - d) Single Row
- 4) Spot welding is the example of _____ task.
 - a) Continuous Curved Path
 - b) Point to point path
 - c) Continuous Straight Path
 - d) None of the above
- 5) A PLC is programmed by specifying some kinds of logic diagrams, called _____ diagrams.
 - a) Scattered
 - b) Ladder
 - c) Intermediate
 - d) Cascaded
- 6) Which of the following is the objective of using ASRS?
 - a) Increasing the storage capacity
 - b) Increasing the stock rotation
 - c) maximising floor space utilization
 - d) all of the above
- 7) _____ come in various formulations, including adhesives, silicone, polyurethane, and epoxy.
 - a) Sealants
 - b) Paints
 - c) Sprayers
 - d) Lubricants
- 8) A robot _____ represents degree of freedom of a robot.
 - a) axis
 - b) payload
 - c) repeatability
 - d) weight

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each sections.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Define robot and explain basic components of robots with functions. **07**
b) Explain different specifications of an industrial robot. **07**
- Q.3** a) What is use of encoders? Explain linear and rotary encoders used in robots. **07**
b) What is an end effector? Explain types of end effectors with applications. **07**
- Q.4** a) Explain difference between AGVs and AMRs. State types of AGVs. **07**
b) Derive forward kinematics equation for 2 DOF planar system. **07**

Section – II

- Q.5** a) What is machine vision? Explain major applications of machine vision. **07**
b) What is role of sensor in camera? Explain working of CCD and CMOS sensors. **07**
- Q.6** a) Why good robot work-cell design is important? Explain considerations in robot work cell design. **07**
b) Explain briefly different programming methods used for industrial robots. **07**
- Q.7** a) Explain considerations while selecting robot for spot welding. State various applications. **07**
b) What is an ASRS? Explain any 3 types of ASRS with examples. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.

14

- 1) Spot welding is the example of _____ task.
 - a) Continuous Curved Path
 - b) Point to point path
 - c) Continuous Straight Path
 - d) None of the above
- 2) A PLC is programmed by specifying some kinds of logic diagrams, called _____ diagrams.
 - a) Scattered
 - b) Ladder
 - c) Intermediate
 - d) Cascaded
- 3) Which of the following is the objective of using ASRS?
 - a) Increasing the storage capacity
 - b) Increasing the stock rotation
 - c) maximising floor space utilization
 - d) all of the above
- 4) _____ come in various formulations, including adhesives, silicone, polyurethane, and epoxy.
 - a) Sealants
 - b) Paints
 - c) Sprayers
 - d) Lubricants
- 5) A robot _____ represents degree of freedom of a robot.
 - a) axis
 - b) payload
 - c) repeatability
 - d) weight
- 6) Repeatability of a robot is expressed in _____.
 - a) meters
 - b) microns
 - c) milli-meters
 - d) centi-meters
- 7) Cartesian robots are also called as _____ robots.
 - a) Rotary
 - b) Angular
 - c) Linear
 - d) Incremental
- 8) A _____ is a variable resistance device that expresses linear or angular displacements in terms of voltage.
 - a) Thermistor
 - b) Thermocouple
 - c) Potentiometer
 - d) LVDT

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each sections.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Define robot and explain basic components of robots with functions. **07**
b) Explain different specifications of an industrial robot. **07**
- Q.3** a) What is use of encoders? Explain linear and rotary encoders used in robots. **07**
b) What is an end effector? Explain types of end effectors with applications. **07**
- Q.4** a) Explain difference between AGVs and AMRs. State types of AGVs. **07**
b) Derive forward kinematics equation for 2 DOF planar system. **07**

Section – II

- Q.5** a) What is machine vision? Explain major applications of machine vision. **07**
b) What is role of sensor in camera? Explain working of CCD and CMOS sensors. **07**
- Q.6** a) Why good robot work-cell design is important? Explain considerations in robot work cell design. **07**
b) Explain briefly different programming methods used for industrial robots. **07**
- Q.7** a) Explain considerations while selecting robot for spot welding. State various applications. **07**
b) What is an ASRS? Explain any 3 types of ASRS with examples. **07**

- 9) _____ come in various formulations, including adhesives, silicone, polyurethane, and epoxy.
- a) Sealants
 - b) Paints
 - c) Sprayers
 - d) Lubricants
- 10) A robot _____ represents degree of freedom of a robot.
- a) axis
 - b) payload
 - c) repeatability
 - d) weight
- 11) Repeatability of a robot is expressed in _____.
- a) meters
 - b) microns
 - c) milli-meters
 - d) centi-meters
- 12) Cartesian robots are also called as _____ robots.
- a) Rotary
 - b) Angular
 - c) Linear
 - d) Incremental
- 13) A _____ is a variable resistance device that expresses linear or angular displacements in terms of voltage.
- a) Thermistor
 - b) Thermocouple
 - c) Potentiometer
 - d) LVDT
- 14) When asymmetrical, elastic crystals are deformed by a force, an electrical potential is developed within the distorted crystal lattice. This is called _____ effect
- a) Hall
 - b) Piezo-electric
 - c) Strain Gauge
 - d) Faraday

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automation and Robotics (BTN02703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each sections.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Define robot and explain basic components of robots with functions. **07**
b) Explain different specifications of an industrial robot. **07**
- Q.3** a) What is use of encoders? Explain linear and rotary encoders used in robots. **07**
b) What is an end effector? Explain types of end effectors with applications. **07**
- Q.4** a) Explain difference between AGVs and AMRs. State types of AGVs. **07**
b) Derive forward kinematics equation for 2 DOF planar system. **07**

Section – II

- Q.5** a) What is machine vision? Explain major applications of machine vision. **07**
b) What is role of sensor in camera? Explain working of CCD and CMOS sensors. **07**
- Q.6** a) Why good robot work-cell design is important? Explain considerations in robot work cell design. **07**
b) Explain briefly different programming methods used for industrial robots. **07**
- Q.7** a) Explain considerations while selecting robot for spot welding. State various applications. **07**
b) What is an ASRS? Explain any 3 types of ASRS with examples. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Type Questions.

14

- 1) Most operation produce a mixture of both products and services, which of the following business is closest to producing 'pure' services?
 - a) IT company
 - b) Counsellor /therapist
 - c) Steel company
 - d) A restaurant
- 2) Which kind of labour force is required in case of Job shop Production _____?
 - a) Highly Skilled
 - b) Semi-skilled
 - c) Unskilled
 - d) Any of the above
- 3) If demand is 106 during January, 120 in February, 134 in March, and 142 in April, what is the 3-month simple moving average for May?
 - a) 132
 - b) 126
 - c) 142
 - d) 138
- 4) Sales forecasts are based on estimates of _____.
 - a) Demand
 - b) Supply
 - c) Demand and supply
 - d) None of the above
- 5) Efficiency is given by _____.
 - a) actual output divided by effective capacity
 - b) capacity divided by utilization
 - c) actual output divided by design capacity
 - d) effective capacity divided by actual output
- 6) Payback Period Criteria is used for _____.
 - a) Capacity planning
 - b) Forecasting
 - c) Production control
 - d) Investment decisions
- 7) The correct sequence of operations in production planning and control is _____.
 - a) Routing-Scheduling-Dispatching-Follow up
 - b) Scheduling-Routing- Dispatching-Follow up
 - c) Dispatching-Routing-Scheduling- Follow up
 - d) Routing-Scheduling-Follow up-Dispatching

- 8) The length of time between placing an order and receipt of material is called as _____.
a) Order time
b) Lead time
c) Cycle time
d) Process time
- 9) In ABC analysis A items require _____.
a) No safety stocks
b) Low safety stock
c) Moderate safety stock
d) High safety stock
- 10) In inventory control theory EOQ is _____.
a) Average level of inventory
b) Optimum lot size
c) Lot size corresponds to Break-even
d) Capacity of warehouse
- 11) TPM Means _____.
a) Total Production Management
b) Total Process Management
c) Total Productive Maintenance
d) None of these
- 12) The downtime cost consists of _____.
a) Loss of production
b) Wages paid to the workers
c) Reduction in sale
d) All of the above
- 13) Which of the following is a non-value-added activity?
a) Clear and truthful advertising
b) Designs that meet engineering specifications but have limited customer input
c) Competent and timely after-sales customer help
d) Use of suppliers that provide high-quality inputs
- 14) JIT is targeted for _____.
a) Average inventory
b) High inventory
c) Zero inventory
d) None of the above

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each sections.
 2) Figures to the right indicates full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

Section – I

- Q.2** a) Define Production Management. Discuss its objectives and Scope. **07**
 b) The following data gives sales of the company for various years. Using least square method estimate sales for next 3 years. **07**

Years	2001	2002	2003	2004	2005	2006	2007
Sales ('000 units)	80	90	92	83	94	99	92

- Q.3** a) Explain Capacity planning procedure. **07**
 b) Discuss in detail investment decision and replacement analysis. **07**
- Q.4 Write notes on. (any two)** **14**
 a) Coordination of PPC with other departments.
 b) Aggregate planning.
 c) Functions of PPC

Section – II

- Q.5** a) Explain the different objectives of inventory control. **05**
 b) Write a note on ABC analysis. **05**
 c) A company purchases 15,625 units of raw material at Rs 12 per unit to meet its entire annual requirement the order cost comes to Rs 60 per unit to order and inventory carrying cost Rs 1.20 per unit **04**
 Find out-
 i) EOQ
 ii) Total ordering cost
 iii) Total carrying cost
 iv) Total inventory cost
- Q.6** a) Write the need and importance of maintenance department in organization. **05**
 b) Write a short brief note on benefits of TPM (Total Productive Maintenance] in organization. **05**
 c) Explain in brief the various types of maintenance in organization. **04**
- Q.7** a) Explain the concept of Six Sigma. **05**
 b) Explain the working of Kanban System. **05**
 c) Write the definition and objectives of value analysis. **04**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Type Questions.

14

- 1) The length of time between placing an order and receipt of material is called as _____.

a) Order time	b) Lead time
c) Cycle time	d) Process time
- 2) In ABC analysis A items require _____.

a) No safety stocks	b) Low safety stock
c) Moderate safety stock	d) High safety stock
- 3) In inventory control theory EOQ is _____.

a) Average level of inventory	b) Optimum lot size
c) Lot size corresponds to Break-even	d) Capacity of warehouse
- 4) TPM Means _____.

a) Total Production Management	b) Total Process Management
c) Total Productive Maintenance	d) None of these
- 5) The downtime cost consists of _____.

a) Loss of production	b) Wages paid to the workers
c) Reduction in sale	d) All of the above
- 6) Which of the following is a non-value-added activity?

a) Clear and truthful advertising	b) Designs that meet engineering specifications but have limited customer input
c) Competent and timely after-sales customer help	d) Use of suppliers that provide high-quality inputs
- 7) JIT is targeted for _____.

a) Average inventory	d) Zero inventory
c) High inventory	d) None of the above

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each sections.
 2) Figures to the right indicates full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

Section – I

- Q.2** a) Define Production Management. Discuss its objectives and Scope. **07**
 b) The following data gives sales of the company for various years. Using least square method estimate sales for next 3 years. **07**

Years	2001	2002	2003	2004	2005	2006	2007
Sales ('000 units)	80	90	92	83	94	99	92

- Q.3** a) Explain Capacity planning procedure. **07**
 b) Discuss in detail investment decision and replacement analysis. **07**
- Q.4 Write notes on. (any two)** **14**
 a) Coordination of PPC with other departments.
 b) Aggregate planning.
 c) Functions of PPC

Section – II

- Q.5** a) Explain the different objectives of inventory control. **05**
 b) Write a note on ABC analysis. **05**
 c) A company purchases 15,625 units of raw material at Rs 12 per unit to meet its entire annual requirement the order cost comes to Rs 60 per unit to order and inventory carrying cost Rs 1.20 per unit **04**
 Find out-
 i) EOQ
 ii) Total ordering cost
 iii) Total carrying cost
 iv) Total inventory cost
- Q.6** a) Write the need and importance of maintenance department in organization. **05**
 b) Write a short brief note on benefits of TPM (Total Productive Maintenance] in organization. **05**
 c) Explain in brief the various types of maintenance in organization. **04**
- Q.7** a) Explain the concept of Six Sigma. **05**
 b) Explain the working of Kanban System. **05**
 c) Write the definition and objectives of value analysis. **04**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Type Questions.

14

- 1) TPM Means _____.
 - a) Total Production Management
 - b) Total Process Management
 - c) Total Productive Maintenance
 - d) None of these
- 2) The downtime cost consists of _____.
 - a) Loss of production
 - b) Wages paid to the workers
 - c) Reduction in sale
 - d) All of the above
- 3) Which of the following is a non-value-added activity?
 - a) Clear and truthful advertising
 - b) Designs that meet engineering specifications but have limited customer input
 - c) Competent and timely after-sales customer help
 - d) Use of suppliers that provide high-quality inputs
- 4) JIT is targeted for _____.
 - a) Average inventory
 - b) Zero inventory
 - c) High inventory
 - d) None of the above
- 5) Most operation produce a mixture of both products and services, which of the following business is closest to producing 'pure' services?
 - a) IT company
 - b) Counsellor /therapist
 - c) Steel company
 - d) A restaurant
- 6) Which kind of labour force is required in case of Job shop Production _____?
 - a) Highly Skilled
 - b) Semi-skilled
 - c) Unskilled
 - d) Any of the above
- 7) If demand is 106 during January, 120 in February, 134 in March, and 142 in April, what is the 3-month simple moving average for May?
 - a) 132
 - b) 126
 - c) 142
 - d) 138

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each sections.
 2) Figures to the right indicates full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

Section – I

- Q.2** a) Define Production Management. Discuss its objectives and Scope. **07**
 b) The following data gives sales of the company for various years. Using least square method estimate sales for next 3 years. **07**

Years	2001	2002	2003	2004	2005	2006	2007
Sales ('000 units)	80	90	92	83	94	99	92

- Q.3** a) Explain Capacity planning procedure. **07**
 b) Discuss in detail investment decision and replacement analysis. **07**
- Q.4 Write notes on. (any two)** **14**
 a) Coordination of PPC with other departments.
 b) Aggregate planning.
 c) Functions of PPC

Section – II

- Q.5** a) Explain the different objectives of inventory control. **05**
 b) Write a note on ABC analysis. **05**
 c) A company purchases 15,625 units of raw material at Rs 12 per unit to meet its entire annual requirement the order cost comes to Rs 60 per unit to order and inventory carrying cost Rs 1.20 per unit **04**
 Find out-
 i) EOQ
 ii) Total ordering cost
 iii) Total carrying cost
 iv) Total inventory cost
- Q.6** a) Write the need and importance of maintenance department in organization. **05**
 b) Write a short brief note on benefits of TPM (Total Productive Maintenance] in organization. **05**
 c) Explain in brief the various types of maintenance in organization. **04**
- Q.7** a) Explain the concept of Six Sigma. **05**
 b) Explain the working of Kanban System. **05**
 c) Write the definition and objectives of value analysis. **04**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Type Questions.

14

- 1) Payback Period Criteria is used for _____.
 a) Capacity planning b) Forecasting
 c) Production control d) Investment decisions
- 2) The correct sequence of operations in production planning and control is _____.
 a) Routing-Scheduling-Dispatching-Follow up
 b) Scheduling-Routing- Dispatching-Follow up
 c) Dispatching-Routing-Scheduling- Follow up
 d) Routing-Scheduling-Follow up-Dispatching
- 3) The length of time between placing an order and receipt of material is called as _____.
 a) Order time b) Lead time
 c) Cycle time d) Process time
- 4) In ABC analysis A items require _____.
 a) No safety stocks b) Low safety stock
 c) Moderate safety stock d) High safety stock
- 5) In inventory control theory EOQ is _____.
 a) Average level of inventory
 b) Optimum lot size
 c) Lot size corresponds to Break-even
 d) Capacity of warehouse
- 6) TPM Means _____.
 a) Total Production Management
 b) Total Process Management
 c) Total Productive Maintenance
 d) None of these
- 7) The downtime cost consists of _____.
 a) Loss of production b) Wages paid to the workers
 c) Reduction in sale d) All of the above

- 8) Which of the following is a non-value-added activity?
a) Clear and truthful advertising
b) Designs that meet engineering specifications but have limited customer input
c) Competent and timely after-sales customer help
d) Use of suppliers that provide high-quality inputs
- 9) JIT is targeted for _____.
a) Average inventory
b) High inventory
c) Zero inventory
d) None of the above
- 10) Most operation produce a mixture of both products and services, which of the following business is closest to producing 'pure' services?
a) IT company
b) Counsellor /therapist
c) Steel company
d) A restaurant
- 11) Which kind of labour force is required in case of Job shop Production _____?
a) Highly Skilled
b) Semi-skilled
c) Unskilled
d) Any of the above
- 12) If demand is 106 during January, 120 in February, 134 in March, and 142 in April, what is the 3-month simple moving average for May?
a) 132
b) 126
c) 142
d) 138
- 13) Sales forecasts are based on estimates of _____.
a) Demand
b) Supply
c) Demand and supply
d) None of the above
- 14) Efficiency is given by _____.
a) actual output divided by effective capacity
b) capacity divided by utilization
c) actual output divided by design capacity
d) effective capacity divided by actual output

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (BTN02706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each sections.
 2) Figures to the right indicates full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram wherever necessary.

Section – I

- Q.2** a) Define Production Management. Discuss its objectives and Scope. **07**
 b) The following data gives sales of the company for various years. Using least square method estimate sales for next 3 years. **07**

Years	2001	2002	2003	2004	2005	2006	2007
Sales ('000 units)	80	90	92	83	94	99	92

- Q.3** a) Explain Capacity planning procedure. **07**
 b) Discuss in detail investment decision and replacement analysis. **07**
- Q.4 Write notes on. (any two)** **14**
 a) Coordination of PPC with other departments.
 b) Aggregate planning.
 c) Functions of PPC

Section – II

- Q.5** a) Explain the different objectives of inventory control. **05**
 b) Write a note on ABC analysis. **05**
 c) A company purchases 15,625 units of raw material at Rs 12 per unit to meet its entire annual requirement the order cost comes to Rs 60 per unit to order and inventory carrying cost Rs 1.20 per unit **04**
 Find out-
 i) EOQ
 ii) Total ordering cost
 iii) Total carrying cost
 iv) Total inventory cost
- Q.6** a) Write the need and importance of maintenance department in organization. **05**
 b) Write a short brief note on benefits of TPM (Total Productive Maintenance] in organization. **05**
 c) Explain in brief the various types of maintenance in organization. **04**
- Q.7** a) Explain the concept of Six Sigma. **05**
 b) Explain the working of Kanban System. **05**
 c) Write the definition and objectives of value analysis. **04**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is the goal of Artificial Intelligence.
 - a) To solve artificial problems
 - b) To extract scientific causes
 - c) To explain various sorts of intelligence
 - d) To solve real-world problems
- 2) _____ is the goal of Artificial Intelligence.
 - a) To solve artificial problems
 - b) To extract scientific causes
 - c) To explain various sorts of intelligence
 - d) To solve real-world problems
- 3) A search algorithm takes _____ as an input and returns _____ as an output.
 - a) Input, output
 - b) Problem, solution
 - c) Solution, problem
 - d) Parameters, sequence of actions
- 4) Which is the best way to go for Game playing problem?
 - a) Linear approach
 - b) Heuristic approach (Some knowledge is stored)
 - c) Random approach
 - d) An Optimal approach
- 5) The values of the set membership is represented by _____.
 - a) Discrete Set
 - b) Degree of truth
 - c) Probabilities
 - d) Both Degree of truth & Probabilities
- 6) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.

a) AND	b) OR
c) NOT	d) All of the mentioned

- 7) What is the main challenge/s of NLP?
- Handling Ambiguity of Sentences
 - Handling Tokenization
 - Handling POS-Tagging
 - All of the mentioned
- 8) Choose form the following areas where NLP can be useful.
- Automatic Text Summarization
 - Automatic Question-Answering Systems
 - Information Retrieval
 - All of the mentioned
- 9) What is Machine learning?
- The autonomous acquisition of knowledge through the use of computer programs
 - The autonomous acquisition of knowledge through the use of manual programs
 - The selective acquisition of knowledge through the use of computer programs
 - The selective acquisition of knowledge through the use of manual programs
- 10) Different learning methods does not include?
- Memorization
 - Analogy
 - Deduction
 - Introduction
- 11) What's the main point of difference between human & machine intelligence?
- Human perceive everything as a pattern while machine perceive it merely as data
 - Human has emotions
 - Human has more IQ & intellect
 - Human has sense organs
- 12) What is plasticity in neural networks?
- Input pattern keeps on changing
 - Input pattern has become static
 - Output pattern keeps on changing
 - Output is static
- 13) There are _____ types of reinforcement.
- 3
 - 2
 - 4
 - 5
- 14) Which of the following is an application of reinforcement learning?
- Topic modeling
 - Recommendation system
 - Pattern recognition
 - Image classification

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempts any two questions from each section.
2) Assume suitable data if required.
3) Figures to the right indicate full marks.

Section – I

- | | | |
|------------|---------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Explain Production Systems method of problem solving in AI. | 07 |
| | b) How Artificial intelligence, Machine Learning, and Deep Learning differ from each other? | 07 |
| Q.3 | a) What is Fuzzy Logic? Explain any 3 applications using fuzzy systems. | 07 |
| | b) Discuss various properties and operations on crisp relation. | 07 |
| Q.4 | a) Explain how NLP is used for Question Answering System. | 07 |
| | b) List few differences between AI, Machine Learning, and NLP. | 07 |

Section – II

- | | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.5 | a) Explain in detail distance-based methods? | 07 |
| | b) Discuss the nearest neighbor with a neat sketch? | 07 |
| Q.6 | a) What is reinforcement learning? Explain with diagram the steps in reinforcement learning. | 07 |
| | b) What are the elements of reinforcement learning? Give illustrations for each element. | 07 |
| Q.7 | a) Explain the concept of a Perceptron with a neat diagram? | 07 |
| | b) Derive the Back propagation rule considering the training rule for Output Unit weights and Training Rule for Hidden Unit weights. | 07 |

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Choose form the following areas where NLP can be useful.
 - a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned

- 2) What is Machine learning?
 - a) The autonomous acquisition of knowledge through the use of computer programs
 - b) The autonomous acquisition of knowledge through the use of manual programs
 - c) The selective acquisition of knowledge through the use of computer programs
 - d) The selective acquisition of knowledge through the use of manual programs

- 3) Different learning methods does not include?

a) Memorization	b) Analogy
c) Deduction	d) Introduction

- 4) What's the main point of difference between human & machine intelligence?
 - a) Human perceive everything as a pattern while machine perceive it merely as data
 - b) Human has emotions
 - c) Human has more IQ & intellect
 - d) Human has sense organs

- 5) What is plasticity in neural networks?
 - a) Input pattern keeps on changing
 - b) Input pattern has become static
 - c) Output pattern keeps on changing
 - d) Output is static

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempts any two questions from each section.
 2) Assume suitable data if required.
 3) Figures to the right indicate full marks.

Section – I

- | | | | |
|------------|-----------|------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain Production Systems method of problem solving in AI. | 07 |
| | b) | How Artificial intelligence, Machine Learning, and Deep Learning differ from each other? | 07 |
| Q.3 | a) | What is Fuzzy Logic? Explain any 3 applications using fuzzy systems. | 07 |
| | b) | Discuss various properties and operations on crisp relation. | 07 |
| Q.4 | a) | Explain how NLP is used for Question Answering System. | 07 |
| | b) | List few differences between AI, Machine Learning, and NLP. | 07 |

Section – II

- | | | | |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain in detail distance-based methods? | 07 |
| | b) | Discuss the nearest neighbor with a neat sketch? | 07 |
| Q.6 | a) | What is reinforcement learning? Explain with diagram the steps in reinforcement learning. | 07 |
| | b) | What are the elements of reinforcement learning? Give illustrations for each element. | 07 |
| Q.7 | a) | Explain the concept of a Perceptron with a neat diagram? | 07 |
| | b) | Derive the Back propagation rule considering the training rule for Output Unit weights and Training Rule for Hidden Unit weights. | 07 |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What's the main point of difference between human & machine intelligence?
 - a) Human perceive everything as a pattern while machine perceive it merely as data
 - b) Human has emotions
 - c) Human has more IQ & intellect
 - d) Human has sense organs
- 2) What is plasticity in neural networks?
 - a) Input pattern keeps on changing
 - b) Input pattern has become static
 - c) Output pattern keeps on changing
 - d) Output is static
- 3) There are _____ types of reinforcement.

a) 3	b) 2
c) 4	d) 5
- 4) Which of the following is an application of reinforcement learning?

a) Topic modeling	b) Recommendation system
c) Pattern recognition	d) Image classification
- 5) _____ is the goal of Artificial Intelligence.
 - a) To solve artificial problems
 - b) To extract scientific causes
 - c) To explain various sorts of intelligence
 - d) To solve real-world problems
- 6) _____ is the goal of Artificial Intelligence.
 - a) To solve artificial problems
 - b) To extract scientific causes
 - c) To explain various sorts of intelligence
 - d) To solve real-world problems

- 7) A search algorithm takes _____ as an input and returns _____ as an output.
- Input, output
 - Problem, solution
 - Solution, problem
 - Parameters, sequence of actions
- 8) Which is the best way to go for Game playing problem?
- Linear approach
 - Heuristic approach (Some knowledge is stored)
 - Random approach
 - An Optimal approach
- 9) The values of the set membership is represented by _____.
- Discrete Set
 - Degree of truth
 - Probabilities
 - Both Degree of truth & Probabilities
- 10) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
- AND
 - OR
 - NOT
 - All of the mentioned
- 11) What is the main challenge/s of NLP?
- Handling Ambiguity of Sentences
 - Handling Tokenization
 - Handling POS-Tagging
 - All of the mentioned
- 12) Choose form the following areas where NLP can be useful.
- Automatic Text Summarization
 - Automatic Question-Answering Systems
 - Information Retrieval
 - All of the mentioned
- 13) What is Machine learning?
- The autonomous acquisition of knowledge through the use of computer programs
 - The autonomous acquisition of knowledge through the use of manual programs
 - The selective acquisition of knowledge through the use of computer programs
 - The selective acquisition of knowledge through the use of manual programs
- 14) Different learning methods does not include?
- Memorization
 - Analogy
 - Deduction
 - Introduction

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempts any two questions from each section.
 2) Assume suitable data if required.
 3) Figures to the right indicate full marks.

Section – I

- | | | | |
|------------|----|------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain Production Systems method of problem solving in AI. | 07 |
| | b) | How Artificial intelligence, Machine Learning, and Deep Learning differ from each other? | 07 |
| Q.3 | a) | What is Fuzzy Logic? Explain any 3 applications using fuzzy systems. | 07 |
| | b) | Discuss various properties and operations on crisp relation. | 07 |
| Q.4 | a) | Explain how NLP is used for Question Answering System. | 07 |
| | b) | List few differences between AI, Machine Learning, and NLP. | 07 |

Section – II

- | | | | |
|------------|----|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain in detail distance-based methods? | 07 |
| | b) | Discuss the nearest neighbor with a neat sketch? | 07 |
| Q.6 | a) | What is reinforcement learning? Explain with diagram the steps in reinforcement learning. | 07 |
| | b) | What are the elements of reinforcement learning? Give illustrations for each element. | 07 |
| Q.7 | a) | Explain the concept of a Perceptron with a neat diagram? | 07 |
| | b) | Derive the Back propagation rule considering the training rule for Output Unit weights and Training Rule for Hidden Unit weights. | 07 |

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.

a) AND	b) OR
c) NOT	d) All of the mentioned
- 2) What is the main challenge/s of NLP?
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 3) Choose form the following areas where NLP can be useful.
 - a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 4) What is Machine learning?
 - a) The autonomous acquisition of knowledge through the use of computer programs
 - b) The autonomous acquisition of knowledge through the use of manual programs
 - c) The selective acquisition of knowledge through the use of computer programs
 - d) The selective acquisition of knowledge through the use of manual programs
- 5) Different learning methods does not include?

a) Memorization	b) Analogy
c) Deduction	d) Introduction

- 6) What's the main point of difference between human & machine intelligence?
- Human perceive everything as a pattern while machine perceive it merely as data
 - Human has emotions
 - Human has more IQ & intellect
 - Human has sense organs
- 7) What is plasticity in neural networks?
- Input pattern keeps on changing
 - Input pattern has become static
 - Output pattern keeps on changing
 - Output is static
- 8) There are _____ types of reinforcement.
- | | |
|------|------|
| a) 3 | b) 2 |
| c) 4 | d) 5 |
- 9) Which of the following is an application of reinforcement learning?
- | | |
|------------------------|--------------------------|
| a) Topic modeling | b) Recommendation system |
| c) Pattern recognition | d) Image classification |
- 10) _____ is the goal of Artificial Intelligence.
- To solve artificial problems
 - To extract scientific causes
 - To explain various sorts of intelligence
 - To solve real-world problems
- 11) _____ is the goal of Artificial Intelligence.
- To solve artificial problems
 - To extract scientific causes
 - To explain various sorts of intelligence
 - To solve real-world problems
- 12) A search algorithm takes _____ as an input and returns _____ as an output.
- Input, output
 - Problem, solution
 - Solution, problem
 - Parameters, sequence of actions
- 13) Which is the best way to go for Game playing problem?
- Linear approach
 - Heuristic approach (Some knowledge is stored)
 - Random approach
 - An Optimal approach
- 14) The values of the set membership is represented by _____.
- Discrete Set
 - Degree of truth
 - Probabilities
 - Both Degree of truth & Probabilities

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Artificial Intelligence and Machine Learning (BTN02707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempts any two questions from each section.
 2) Assume suitable data if required.
 3) Figures to the right indicate full marks.

Section – I

- | | | | |
|------------|-----------|------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain Production Systems method of problem solving in AI. | 07 |
| | b) | How Artificial intelligence, Machine Learning, and Deep Learning differ from each other? | 07 |
| Q.3 | a) | What is Fuzzy Logic? Explain any 3 applications using fuzzy systems. | 07 |
| | b) | Discuss various properties and operations on crisp relation. | 07 |
| Q.4 | a) | Explain how NLP is used for Question Answering System. | 07 |
| | b) | List few differences between AI, Machine Learning, and NLP. | 07 |

Section – II

- | | | | |
|------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain in detail distance-based methods? | 07 |
| | b) | Discuss the nearest neighbor with a neat sketch? | 07 |
| Q.6 | a) | What is reinforcement learning? Explain with diagram the steps in reinforcement learning. | 07 |
| | b) | What are the elements of reinforcement learning? Give illustrations for each element. | 07 |
| Q.7 | a) | Explain the concept of a Perceptron with a neat diagram? | 07 |
| | b) | Derive the Back propagation rule considering the training rule for Output Unit weights and Training Rule for Hidden Unit weights. | 07 |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (BTN02708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which signals are used in shunting operations for low-speed movement?
 - a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal
- 2) In DFC track inspection is done by _____.
 - a) TRC
 - b) BFC
 - c) NFC
 - d) LFC
- 3) _____ is not a coupling used in Railway Coaches.
 - a) Screw Coupling
 - b) Side buffer coupling
 - c) Central buffer coupling
 - d) Tie coupling
- 4) Which of the following is an advantage of electric traction over other methods of traction?
 - a) Faster acceleration
 - b) No pollution problems
 - c) Better braking action
 - d) All of the above
- 5) _____ is not a part of VCC used in A/C.
 - a) Evaporator
 - b) Condenser
 - c) Compressor
 - d) Deflector
- 6) In railway the green light indicates _____.
 - a) stop
 - b) proceed
 - c) proceed cautiously
 - d) none
- 7) For Fiat Bogie Break disc diameter is _____ mm.
 - a) 750
 - b) 650
 - c) 635
 - d) 640
- 8) Which of the following can be used in case of Bridge joints?
 - a) Metal flat or Bridge plate
 - b) Extra sleepers
 - c) Metal flat
 - d) Bridge plate
- 9) _____ is not a maintenance report that is recorded in Loco shade.
 - a) Loco master defect report
 - b) Component defect report
 - c) Analysis defect report
 - d) Component inspection report

- 10) _____ is not a cause of accident in Indian Railway.
- a) Negligence
 - b) Human error
 - c) Reckless pedestrians and drivers
 - d) Electrification
- 11) _____ works as primary energy absorber during accidental shock.
- a) Honeycomb absorber
 - b) Pads
 - c) Spring
 - d) None of these
- 12) _____ is not strategy of fire accidents.
- a) Prevention
 - b) Detection
 - c) Suppression
 - d) Speed
- 13) Weight of the passenger is categorized in _____.
- a) sprung mass
 - b) un sprung mass
 - c) non-sprung mass
 - d) dummy mass
- 14) FOIS Means _____.
- a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Railway Systems Management (BTN02708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Assume suitable data if necessary.
3) Use of scientific calculator is allowed.

Section – I

Q.2 Solve:

- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
- b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
- c) Explain in details the different parts of C.B.C coupler. **05**

Q.3 Solve:

- a) Write the steps of heating load calculation in 2. A.C coach. **04**
- b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
- c) Write the constructional details of Traction Motors used in Indian Railway. **05**

Q.4 Solve:

- a) Describe all Parts of LHB Bogies in Railway. **04**
- b) Write a short note R.M.P.U in LHB coaches. **05**
- c) Explain in details of HOG. **05**

Section – II

Q.5 Solve:

- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
- b) Write short note on types of pollution in Indian railway. **05**
- c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**

Q.6 Solve:

- a) Which digital technologies used in traffic control. Explain RFID in details. **05**
- b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
- c) Describe in details the Green Initiatives in Indian railway sectors. **04**

Q.7 Solve:

- a) Write in details the Ticket reservation system in Indian Railway. **04**
- b) What is mean by rolling stock management. which types of rolling stock management used in Indian railway? **05**
- c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (BTN02708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which of the following can be used in case of Bridge joints?
 - a) Metal flat or Bridge plate
 - b) Extra sleepers
 - c) Metal flat
 - d) Bridge plate
- 2) _____ is not a maintenance report that is recorded in Loco shade.
 - a) Loco master defect report
 - b) Component defect report
 - c) Analysis defect report
 - d) Component inspection report
- 3) _____ is not a cause of accident in Indian Railway.
 - a) Negligence
 - b) Human error
 - c) Reckless pedestrians and drivers
 - d) Electrification
- 4) _____ works as primary energy absorber during accidental shock.
 - a) Honeycomb absorber
 - b) Pads
 - c) Spring
 - d) None of these
- 5) _____ is not strategy of fire accidents.
 - a) Prevention
 - b) Detection
 - c) Suppression
 - d) Speed
- 6) Weight of the passenger is categorized in _____.
 - a) sprung mass
 - b) un sprung mass
 - c) non-sprung mass
 - d) dummy mass
- 7) FOIS Means _____.
 - a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these
- 8) Which signals are used in shunting operations for low-speed movement?
 - a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (BTN02708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
 2) Assume suitable data if necessary.
 3) Use of scientific calculator is allowed.

Section – I**Q.2 Solve:**

- a) What are the components of air suspension in the Indian Railway? **04**
 Elaborate in details.
- b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
- c) Explain in details the different parts of C.B.C coupler. **05**

Q.3 Solve:

- a) Write the steps of heating load calculation in 2. A.C coach. **04**
- b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
- c) Write the constructional details of Traction Motors used in Indian Railway. **05**

Q.4 Solve:

- a) Describe all Parts of LHB Bogies in Railway. **04**
- b) Write a short note R.M.P.U in LHB coaches. **05**
- c) Explain in details of HOG. **05**

Section – II**Q.5 Solve:**

- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
- b) Write short note on types of pollution in Indian railway. **05**
- c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**

Q.6 Solve:

- a) Which digital technologies used in traffic control. Explain RFID in details. **05**
- b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
- c) Describe in details the Green Initiatives in Indian railway sectors. **04**

Q.7 Solve:

- a) Write in details the Ticket reservation system in Indian Railway. **04**
- b) What is mean by rolling stock management. which types of rolling stock management used in Indian railway? **05**
- c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (BTN02708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) _____ works as primary energy absorber during accidental shock.
 - a) Honeycomb absorber
 - b) Pads
 - c) Spring
 - d) None of these
- 2) _____ is not strategy of fire accidents.
 - a) Prevention
 - b) Detection
 - c) Suppression
 - d) Speed
- 3) Weight of the passenger is categorized in _____.
 - a) sprung mass
 - b) un sprung mass
 - c) non-sprung mass
 - d) dummy mass
- 4) FOIS Means _____.
 - a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these
- 5) Which signals are used in shunting operations for low-speed movement?
 - a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal
- 6) In DFC track inspection is done by _____.
 - a) TRC
 - b) BFC
 - c) NFC
 - d) LFC
- 7) _____ is not a coupling used in Railway Coaches.
 - a) Screw Coupling
 - b) Side buffer coupling
 - c) Central buffer coupling
 - d) Tie coupling
- 8) Which of the following is an advantage of electric traction over other methods of traction?
 - a) Faster acceleration
 - b) No pollution problems
 - c) Better braking action
 - d) All of the above
- 9) _____ is not a part of VCC used in A/C.
 - a) Evaporator
 - b) Condenser
 - c) Compressor
 - d) Deflector

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (BTN02708)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Assume suitable data if necessary.
3) Use of scientific calculator is allowed.

Section – I**Q.2 Solve:**

- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
- b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
- c) Explain in details the different parts of C.B.C coupler. **05**

Q.3 Solve:

- a) Write the steps of heating load calculation in 2. A.C coach. **04**
- b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
- c) Write the constructional details of Traction Motors used in Indian Railway. **05**

Q.4 Solve:

- a) Describe all Parts of LHB Bogies in Railway. **04**
- b) Write a short note R.M.P.U in LHB coaches. **05**
- c) Explain in details of HOG. **05**

Section – II**Q.5 Solve:**

- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
- b) Write short note on types of pollution in Indian railway. **05**
- c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**

Q.6 Solve:

- a) Which digital technologies used in traffic control. Explain RFID in details. **05**
- b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
- c) Describe in details the Green Initiatives in Indian railway sectors. **04**

Q.7 Solve:

- a) Write in details the Ticket reservation system in Indian Railway. **04**
- b) What is mean by rolling stock management. which types of rolling stock management used in Indian railway? **05**
- c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Railway Systems Management (BTN02708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) In railway the green light indicates _____.
a) stop
b) proceed
c) proceed cautiously
d) none
- 2) For Fiat Bogie Break disc diameter is _____ mm.
a) 750
b) 650
c) 635
d) 640
- 3) Which of the following can be used in case of Bridge joints?
a) Metal flat or Bridge plate
b) Extra sleepers
c) Metal flat
d) Bridge plate
- 4) _____ is not a maintenance report that is recorded in Loco shade.
a) Loco master defect report
b) Component defect report
c) Analysis defect report
d) Component inspection report
- 5) _____ is not a cause of accident in Indian Railway.
a) Negligence
b) Human error
c) Reckless pedestrians and drivers
d) Electrification
- 6) _____ works as primary energy absorber during accidental shock.
a) Honeycomb absorber
b) Pads
c) Spring
d) None of these
- 7) _____ is not strategy of fire accidents.
a) Prevention
b) Detection
c) Suppression
d) Speed
- 8) Weight of the passenger is categorized in _____.
a) sprung mass
b) un sprung mass
c) non-sprung mass
d) dummy mass

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (BTN02708)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each Section.
2) Assume suitable data if necessary.
3) Use of scientific calculator is allowed.

Section – I**Q.2 Solve:**

- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
- b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
- c) Explain in details the different parts of C.B.C coupler. **05**

Q.3 Solve:

- a) Write the steps of heating load calculation in 2. A.C coach. **04**
- b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
- c) Write the constructional details of Traction Motors used in Indian Railway. **05**

Q.4 Solve:

- a) Describe all Parts of LHB Bogies in Railway. **04**
- b) Write a short note R.M.P.U in LHB coaches. **05**
- c) Explain in details of HOG. **05**

Section – II**Q.5 Solve:**

- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
- b) Write short note on types of pollution in Indian railway. **05**
- c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**

Q.6 Solve:

- a) Which digital technologies used in traffic control. Explain RFID in details. **05**
- b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
- c) Describe in details the Green Initiatives in Indian railway sectors. **04**

Q.7 Solve:

- a) Write in details the Ticket reservation system in Indian Railway. **04**
- b) What is mean by rolling stock management. which types of rolling stock management used in Indian railway? **05**
- c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The analysis of mechanism deals with _____.
 - a) The determination of input and output angles of a mechanism.
 - b) The determination of dimensions of the links in a mechanism.
 - c) The determination of displacement, velocity and acceleration of the links in a mechanism.
 - d) The determination of number of joints in a mechanism.
- 2) The synthesis of mechanism deals with _____.
 - a) The determination of input and output angles of a mechanism.
 - b) The determination of dimensions of the links in a mechanism.
 - c) The determination of displacement, velocity and acceleration of the links in a mechanism.
 - d) The determination of number of joints in a mechanism.
- 3) The difference between the desired motion and the actual motion produced is known as _____.

a) Structural error	b) Mechanical error
c) Graphical error	d) Mathematical error
- 4) The error resulting from tolerances in the length of links and bearing clearances is known as _____.

a) Structural error	b) Mechanical error
c) Graphical error	d) Mathematical error
- 5) Which of the following is not a kind of synthesis problem?

a) Function generation	b) Path generation
c) Body guidance	d) Linkage guidance
- 6) Designing a four-bar mechanism to generate the function $y = f(x)$ is an example of

a) Function generation	b) Path generation
c) Body guidance	d) Linkage guidance

- 7) When a mechanism is required to guide a point, it falls under the category of synthesis?
a) Function generation b) Path generation
c) Body guidance d) Linkage guidance
- 8) What is a coupler curve?
a) Locus of a point on the plane parallel to coupler
b) Locus of a point on the coupler link
c) Locus of a point on the plane perpendicular to coupler
d) Locus of a point on the follower link
- 9) How many minimum possible circles are traced by links in a four-bar mechanism?
a) 1 b) 2
c) 3 d) 4
- 10) When the position of a point within a moving body and the angular displacement of the body are specified, designing of this mechanism falls under the category of _____ synthesis.
a) Function generation b) Path generation
c) Body guidance d) Linkage guidance
- 11) The points at which the generated and desired functions agree are known as _____.
a) Precision points
b) Accuracy points
c) Either precision points or accuracy points
d) Neither precision points nor accuracy points
- 12) The best spacing of the precision points, for the first trial, is called _____.
a) Chebyshev spacing b) Freudenstein spacing
c) Sandor spacing d) Equal spacing
- 13) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'a' in mm.
a) 48.2 b) 58.2
c) 45.6 d) 42.2
- 14) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'c' in mm.
a) 148.2 b) 158.2
c) 135.7 d) 120.2

Seat No.	
---------------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Define kinematic pair and explain its classification. **07**
 b) What is the difference between degrees of freedom of a kinematic pair and that of a mechanism? How the two are interconnected. **07**
- Q.3** a) Explain matrix method of analysis of mechanisms. **07**
 b) Can the matrix method be applied for analyzing the mechanisms involving springs? If YES, How? If NO, why? **07**
- Q.4** a) What is the use of Bobillier's constructions? Explain all Bobillier constructions with supporting sketches. **07**
 b) Explain the significance of inflection circle. What is its use in kinematics. **07**

Section – II

- Q.5** a) Explain circle point curve and center point curve. **07**
 b) Derive Freudenstein's equation and explain its use. **07**
- Q.6** a) Explain different defects possible in synthesized mechanisms. **07**
 b) Explain Denavit-Hartenberg parameters of spatial mechanism. **07**
- Q.7** a) Explain point position reduction. **07**
 b) Explain Dwell mechanisms. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is a coupler curve?
 - a) Locus of a point on the plane parallel to coupler
 - b) Locus of a point on the coupler link
 - c) Locus of a point on the plane perpendicular to coupler
 - d) Locus of a point on the follower link
- 2) How many minimum possible circles are traced by links in a four-bar mechanism?

a) 1	b) 2
c) 3	d) 4
- 3) When the position of a point within a moving body and the angular displacement of the body are specified, designing of this mechanism falls under the category of _____ synthesis.

a) Function generation	b) Path generation
c) Body guidance	d) Linkage guidance
- 4) The points at which the generated and desired functions agree are known as _____.
 - a) Precision points
 - b) Accuracy points
 - c) Either precision points or accuracy points
 - d) Neither precision points nor accuracy points
- 5) The best spacing of the precision points, for the first trial, is called _____.

a) Chebyshev spacing	b) Freudenstein spacing
c) Sandor spacing	d) Equal spacing
- 6) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'a' in mm.

a) 48.2	b) 58.2
c) 45.6	d) 42.2

Seat No.	
---------------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Define kinematic pair and explain its classification. **07**
 b) What is the difference between degrees of freedom of a kinematic pair and that of a mechanism? How the two are interconnected. **07**
- Q.3** a) Explain matrix method of analysis of mechanisms. **07**
 b) Can the matrix method be applied for analyzing the mechanisms involving springs? If YES, How? If NO, why? **07**
- Q.4** a) What is the use of Bobillier's constructions? Explain all Bobillier constructions with supporting sketches. **07**
 b) Explain the significance of inflection circle. What is its use in kinematics. **07**

Section – II

- Q.5** a) Explain circle point curve and center point curve. **07**
 b) Derive Freudenstein's equation and explain its use. **07**
- Q.6** a) Explain different defects possible in synthesized mechanisms. **07**
 b) Explain Denavit-Hartenberg parameters of spatial mechanism. **07**
- Q.7** a) Explain point position reduction. **07**
 b) Explain Dwell mechanisms. **07**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The points at which the generated and desired functions agree are known as _____.
 a) Precision points
 b) Accuracy points
 c) Either precision points or accuracy points
 d) Neither precision points nor accuracy points
- 2) The best spacing of the precision points, for the first trial, is called _____.
 a) Chebyshev spacing
 b) Freudenstein spacing
 c) Sandor spacing
 d) Equal spacing
- 3) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'a' in mm.
 a) 48.2
 b) 58.2
 c) 45.6
 d) 42.2
- 4) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'c' in mm.
 a) 148.2
 b) 158.2
 c) 135.7
 d) 120.2
- 5) The analysis of mechanism deals with _____.
 a) The determination of input and output angles of a mechanism.
 b) The determination of dimensions of the links in a mechanism.
 c) The determination of displacement, velocity and acceleration of the links in a mechanism.
 d) The determination of number of joints in a mechanism.

- 6) The synthesis of mechanism deals with _____.
a) The determination of input and output angles of a mechanism.
b) The determination of dimensions of the links in a mechanism.
c) The determination of displacement, velocity and acceleration of the links in a mechanism.
d) The determination of number of joints in a mechanism.
- 7) The difference between the desired motion and the actual motion produced is known as _____.
a) Structural error
b) Mechanical error
c) Graphical error
d) Mathematical error
- 8) The error resulting from tolerances in the length of links and bearing clearances is known as _____.
a) Structural error
b) Mechanical error
c) Graphical error
d) Mathematical error
- 9) Which of the following is not a kind of synthesis problem?
a) Function generation
b) Path generation
c) Body guidance
d) Linkage guidance
- 10) Designing a four-bar mechanism to generate the function $y = f(x)$ is an example of
a) Function generation
b) Path generation
c) Body guidance
d) Linkage guidance
- 11) When a mechanism is required to guide a point, it falls under the category of synthesis?
a) Function generation
b) Path generation
c) Body guidance
d) Linkage guidance
- 12) What is a coupler curve?
a) Locus of a point on the plane parallel to coupler
b) Locus of a point on the coupler link
c) Locus of a point on the plane perpendicular to coupler
d) Locus of a point on the follower link
- 13) How many minimum possible circles are traced by links in a four-bar mechanism?
a) 1
b) 2
c) 3
d) 4
- 14) When the position of a point within a moving body and the angular displacement of the body are specified, designing of this mechanism falls under the category of _____ synthesis.
a) Function generation
b) Path generation
c) Body guidance
d) Linkage guidance

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Attempt any two questions from each section.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Define kinematic pair and explain its classification. **07**
 b) What is the difference between degrees of freedom of a kinematic pair and that of a mechanism? How the two are interconnected. **07**
- Q.3** a) Explain matrix method of analysis of mechanisms. **07**
 b) Can the matrix method be applied for analyzing the mechanisms involving springs? If YES, How? If NO, why? **07**
- Q.4** a) What is the use of Bobillier's constructions? Explain all Bobillier constructions with supporting sketches. **07**
 b) Explain the significance of inflection circle. What is its use in kinematics. **07**

Section – II

- Q.5** a) Explain circle point curve and center point curve. **07**
 b) Derive Freudenstein's equation and explain its use. **07**
- Q.6** a) Explain different defects possible in synthesized mechanisms. **07**
 b) Explain Denvit-Hartenberg parameters of spatial mechanism. **07**
- Q.7** a) Explain point position reduction. **07**
 b) Explain Dwell mechanisms. **07**

Seat No.	
---------------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary and state it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Designing a four-bar mechanism to generate the function $y = f(x)$ is an example of

a) Function generation	b) Path generation
c) Body guidance	d) Linkage guidance
- 2) When a mechanism is required to guide a point, it falls under the category of synthesis?

a) Function generation	b) Path generation
c) Body guidance	d) Linkage guidance
- 3) What is a coupler curve?
 - a) Locus of a point on the plane parallel to coupler
 - b) Locus of a point on the coupler link
 - c) Locus of a point on the plane perpendicular to coupler
 - d) Locus of a point on the follower link
- 4) How many minimum possible circles are traced by links in a four-bar mechanism?

a) 1	b) 2
c) 3	d) 4
- 5) When the position of a point within a moving body and the angular displacement of the body are specified, designing of this mechanism falls under the category of _____ synthesis.

a) Function generation	b) Path generation
c) Body guidance	d) Linkage guidance
- 6) The points at which the generated and desired functions agree are known as _____.
 - a) Precision points
 - b) Accuracy points
 - c) Either precision points or accuracy points
 - d) Neither precision points nor accuracy points

- 7) The best spacing of the precision points, for the first trial, is called _____.
a) Chebyshev spacing b) Freudenstein spacing
c) Sandor spacing d) Equal spacing
- 8) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'a' in mm.
a) 48.2 b) 58.2
c) 45.6 d) 42.2
- 9) If the crank rotation angle varies from 45 degrees to 135 degrees, using three precision points with Chebyshev's spacing, synthesize a slider crank mechanism where displacement of slider is square of the crank rotation. From the above information calculate 'c' in mm.
a) 148.2 b) 158.2
c) 135.7 d) 120.2
- 10) The analysis of mechanism deals with _____.
a) The determination of input and output angles of a mechanism.
b) The determination of dimensions of the links in a mechanism.
c) The determination of displacement, velocity and acceleration of the links in a mechanism.
d) The determination of number of joints in a mechanism.
- 11) The synthesis of mechanism deals with _____.
a) The determination of input and output angles of a mechanism.
b) The determination of dimensions of the links in a mechanism.
c) The determination of displacement, velocity and acceleration of the links in a mechanism.
d) The determination of number of joints in a mechanism.
- 12) The difference between the desired motion and the actual motion produced is known as _____.
a) Structural error b) Mechanical error
c) Graphical error d) Mathematical error
- 13) The error resulting from tolerances in the length of links and bearing clearances is known as _____.
a) Structural error b) Mechanical error
c) Graphical error d) Mathematical error
- 14) Which of the following is not a kind of synthesis problem?
a) Function generation b) Path generation
c) Body guidance d) Linkage guidance

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Analysis & Synthesis of Mechanisms (BTN02709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two questions from each section.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Define kinematic pair and explain its classification. **07**
 b) What is the difference between degrees of freedom of a kinematic pair and that of a mechanism? How the two are interconnected. **07**
- Q.3** a) Explain matrix method of analysis of mechanisms. **07**
 b) Can the matrix method be applied for analyzing the mechanisms involving springs? If YES, How? If NO, why? **07**
- Q.4** a) What is the use of Bobillier's constructions? Explain all Bobillier constructions with supporting sketches. **07**
 b) Explain the significance of inflection circle. What is its use in kinematics. **07**

Section – II

- Q.5** a) Explain circle point curve and center point curve. **07**
 b) Derive Freudenstein's equation and explain its use. **07**
- Q.6** a) Explain different defects possible in synthesized mechanisms. **07**
 b) Explain Denavit-Hartenberg parameters of spatial mechanism. **07**
- Q.7** a) Explain point position reduction. **07**
 b) Explain Dwell mechanisms. **07**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Answer cannot be changed once it is marked.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Which of the following is a Giffen good?

a) Cellphone	b) Potato
c) Notebook	d) Gold
- 2) Higher indifference curve indicates _____.

a) higher cost	b) lower cost
c) higher satisfaction	d) lower satisfaction
- 3) Maximum ceiling price must be _____.

a) below the equilibrium price	b) same as the equilibrium price
c) above the equilibrium price	d) same as production cost
- 4) Sum of all indirect costs & indirect expenses is known as _____.

a) total cost	b) production cost
c) prime cost	d) Overheads
- 5) Additional cost that results by increasing the output by one unit is known as _____.

a) opportunity cost	b) marginal cost
c) incremental cost	d) sunk cost
- 6) Which of the following is not included in production cost?
 - a) factory overhead
 - b) administrative overhead
 - c) selling and distribution overhead
 - d) indirect expenses
- 7) Finding the current value from future sum is known as _____.

a) future worth method	b) present worth method
c) rate of return method	d) annual equivalent method
- 8) Which of the following favours 'Buy' decision?

a) high production volume	b) higher fixed cost
c) high production capacity	d) lower fixed cost

- 9) Replacing casting by forging is an example of _____.
a) raw material substitution b) product modification
c) process modification d) design modification
- 10) Decision to 'Buy' is preferred _____.
a) above BEP b) to the right of BEP
c) to the left of BEP d) below BEP
- 11) An new equipment is known as a _____.
a) defender b) survivor
c) competitor d) challenger
- 12) To guess possible failures is a necessary step in _____ maintenance.
a) routine b) opportunistic
c) breakdown d) predictive
- 13) C.B.M. stands for _____.
a) Cost Based Maintenance b) Condition Based Monitoring
c) Condition Based Maintenance d) Cost Based Monitoring
- 14) Arms of a chair is an example of _____ function.
a) primary b) aesthetic
c) tertiary d) secondary

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Use of scientific calculator is allowed.
 3) Figures to the right indicates full marks.
 4) Assume additional suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Explain law of demand and determinants of demand. **08**
 b) Annual fees of a student is Rs 80000 per year for a period of 10 years of education. Calculate the total fees that the student would pay at the end of 10 years if the interest rate is 8 % compounded annually. Draw the cash flow diagram. **06**
- Q.3** a) Two operators work on a forging machine for 30 jobs each weighing 5 kg in a shift of eight hours. They are paid at a rate of Rs 300 and Rs 200 per day. Forged material costs Rs 8 / kg. If factory and administrative expenses put together are twice the labour cost, calculate the cost of production per unit. **08**
 b) Anil has taken a housing loan of Rs 4000000. If term of loan is 20 years with interest rate 9 % compounded annually, calculate the annual payment he has to make. **06**
- Q.4** a) A hard disc supplier wants to raise the price of a hard disc from current price of Rs 3000 per unit. Currently he sells 800 units / month but wants to bring down the sales to 600 / month. If PED of the hard disc is 3, what should be its new price? (Use initial value method) **07**
 b) Explain with suitable examples 'implicit cost' and 'explicit cost'. **07**

Section – II

- Q.5** a) Explain various functional aspects of make or buy decision. **06**
 b) Explain with a block diagram, various phases of a project life cycle. **08**
- Q.6** a) Explain: **08**
 1) preventive maintenance
 2) breakdown maintenance
 b) What do you mean by 'Value' of a product? What are the various types of values? **06**
- Q.7** a) Discuss with suitable examples the need to replace raw material of a product. **08**
 b) Explain various reasons for replacement of an asset. **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Answer cannot be changed once it is marked.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Which of the following favours 'Buy' decision?
 - a) high production volume
 - b) higher fixed cost
 - c) high production capacity
 - d) lower fixed cost
- 2) Replacing casting by forging is an example of _____.
 - a) raw material substitution
 - b) product modification
 - c) process modification
 - d) design modification
- 3) Decision to 'Buy' is preferred _____.
 - a) above BEP
 - b) to the right of BEP
 - c) to the left of BEP
 - d) below BEP
- 4) An new equipment is known as a _____.
 - a) defender
 - b) survivor
 - c) competitor
 - d) challenger
- 5) To guess possible failures is a necessary step in _____ maintenance.
 - a) routine
 - b) opportunistic
 - c) breakdown
 - d) predictive
- 6) C.B.M. stands for _____.
 - a) Cost Based Maintenance
 - b) Condition Based Monitoring
 - c) Condition Based Maintenance
 - d) Cost Based Monitoring
- 7) Arms of a chair is an example of _____ function.
 - a) primary
 - b) aesthetic
 - c) tertiary
 - d) secondary
- 8) Which of the following is a Giffen good?
 - a) Cellphone
 - b) Potato
 - c) Notebook
 - d) Gold
- 9) Higher indifference curve indicates _____.
 - a) higher cost
 - b) lower cost
 - c) higher satisfaction
 - d) lower satisfaction

- 10)** Maximum ceiling price must be _____.
a) below the equilibrium price b) same as the equilibrium price
c) above the equilibrium price d) same as production cost
- 11)** Sum of all indirect costs & indirect expenses is known as _____.
a) total cost b) production cost
c) prime cost d) Overheads
- 12)** Additional cost that results by increasing the output by one unit is known as _____.
a) opportunity cost b) marginal cost
c) incremental cost d) sunk cost
- 13)** Which of the following is not included in production cost?
a) factory overhead
b) administrative overhead
c) selling and distribution overhead
d) indirect expenses
- 14)** Finding the current value from future sum is known as _____.
a) future worth method b) present worth method
c) rate of return method d) annual equivalent method

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Use of scientific calculator is allowed.
 3) Figures to the right indicates full marks.
 4) Assume additional suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Explain law of demand and determinants of demand. **08**
 b) Annual fees of a student is Rs 80000 per year for a period of 10 years of education. Calculate the total fees that the student would pay at the end of 10 years if the interest rate is 8 % compounded annually. Draw the cash flow diagram. **06**
- Q.3** a) Two operators work on a forging machine for 30 jobs each weighing 5 kg in a shift of eight hours. They are paid at a rate of Rs 300 and Rs 200 per day. Forged material costs Rs 8 / kg. If factory and administrative expenses put together are twice the labour cost, calculate the cost of production per unit. **08**
 b) Anil has taken a housing loan of Rs 4000000. If term of loan is 20 years with interest rate 9 % compounded annually, calculate the annual payment he has to make. **06**
- Q.4** a) A hard disc supplier wants to raise the price of a hard disc from current price of Rs 3000 per unit. Currently he sells 800 units / month but wants to bring down the sales to 600 / month. If PED of the hard disc is 3, what should be its new price? (Use initial value method) **07**
 b) Explain with suitable examples 'implicit cost' and 'explicit cost'. **07**

Section – II

- Q.5** a) Explain various functional aspects of make or buy decision. **06**
 b) Explain with a block diagram, various phases of a project life cycle. **08**
- Q.6** a) Explain: **08**
 1) preventive maintenance
 2) breakdown maintenance
 b) What do you mean by 'Value' of a product? What are the various types of values? **06**
- Q.7** a) Discuss with suitable examples the need to replace raw material of a product. **08**
 b) Explain various reasons for replacement of an asset. **06**

- 10)** Which of the following is not included in production cost?
a) factory overhead
b) administrative overhead
c) selling and distribution overhead
d) indirect expenses
- 11)** Finding the current value from future sum is known as _____.
a) future worth method b) present worth method
c) rate of return method d) annual equivalent method
- 12)** Which of the following favours 'Buy' decision?
a) high production volume b) higher fixed cost
c) high production capacity d) lower fixed cost
- 13)** Replacing casting by forging is an example of _____.
a) raw material substitution b) product modification
c) process modification d) design modification
- 14)** Decision to 'Buy' is preferred _____.
a) above BEP b) to the right of BEP
c) to the left of BEP d) below BEP

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Use of scientific calculator is allowed.
 3) Figures to the right indicates full marks.
 4) Assume additional suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Explain law of demand and determinants of demand. **08**
 b) Annual fees of a student is Rs 80000 per year for a period of 10 years of education. Calculate the total fees that the student would pay at the end of 10 years if the interest rate is 8 % compounded annually. Draw the cash flow diagram. **06**
- Q.3** a) Two operators work on a forging machine for 30 jobs each weighing 5 kg in a shift of eight hours. They are paid at a rate of Rs 300 and Rs 200 per day. Forged material costs Rs 8 / kg. If factory and administrative expenses put together are twice the labour cost, calculate the cost of production per unit. **08**
 b) Anil has taken a housing loan of Rs 4000000. If term of loan is 20 years with interest rate 9 % compounded annually, calculate the annual payment he has to make. **06**
- Q.4** a) A hard disc supplier wants to raise the price of a hard disc from current price of Rs 3000 per unit. Currently he sells 800 units / month but wants to bring down the sales to 600 / month. If PED of the hard disc is 3, what should be its new price? (Use initial value method) **07**
 b) Explain with suitable examples 'implicit cost' and 'explicit cost'. **07**

Section – II

- Q.5** a) Explain various functional aspects of make or buy decision. **06**
 b) Explain with a block diagram, various phases of a project life cycle. **08**
- Q.6** a) Explain: **08**
 1) preventive maintenance
 2) breakdown maintenance
 b) What do you mean by 'Value' of a product? What are the various types of values? **06**
- Q.7** a) Discuss with suitable examples the need to replace raw material of a product. **08**
 b) Explain various reasons for replacement of an asset. **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Answer cannot be changed once it is marked.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Which of the following is not included in production cost?
 - a) factory overhead
 - b) administrative overhead
 - c) selling and distribution overhead
 - d) indirect expenses
- 2) Finding the current value from future sum is known as _____.
 - a) future worth method
 - b) present worth method
 - c) rate of return method
 - d) annual equivalent method
- 3) Which of the following favours 'Buy' decision?
 - a) high production volume
 - b) higher fixed cost
 - c) high production capacity
 - d) lower fixed cost
- 4) Replacing casting by forging is an example of _____.
 - a) raw material substitution
 - b) product modification
 - c) process modification
 - d) design modification
- 5) Decision to 'Buy' is preferred _____.
 - a) above BEP
 - b) to the right of BEP
 - c) to the left of BEP
 - d) below BEP
- 6) An new equipment is known as a _____.
 - a) defender
 - b) survivor
 - c) competitor
 - d) challenger
- 7) To guess possible failures is a necessary step in _____ maintenance.
 - a) routine
 - b) opportunistic
 - c) breakdown
 - d) predictive
- 8) C.B.M. stands for _____.
 - a) Cost Based Maintenance
 - b) Condition Based Monitoring
 - c) Condition Based Maintenance
 - d) Cost Based Monitoring
- 9) Arms of a chair is an example of _____ function.
 - a) primary
 - b) aesthetic
 - c) tertiary
 - d) secondary

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (BTN02710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Use of scientific calculator is allowed.
 3) Figures to the right indicates full marks.
 4) Assume additional suitable data if necessary and state it clearly.

Section – I

- Q.2** a) Explain law of demand and determinants of demand. **08**
 b) Annual fees of a student is Rs 80000 per year for a period of 10 years of education. Calculate the total fees that the student would pay at the end of 10 years if the interest rate is 8 % compounded annually. Draw the cash flow diagram. **06**
- Q.3** a) Two operators work on a forging machine for 30 jobs each weighing 5 kg in a shift of eight hours. They are paid at a rate of Rs 300 and Rs 200 per day. Forged material costs Rs 8 / kg. If factory and administrative expenses put together are twice the labour cost, calculate the cost of production per unit. **08**
 b) Anil has taken a housing loan of Rs 4000000. If term of loan is 20 years with interest rate 9 % compounded annually, calculate the annual payment he has to make. **06**
- Q.4** a) A hard disc supplier wants to raise the price of a hard disc from current price of Rs 3000 per unit. Currently he sells 800 units / month but wants to bring down the sales to 600 / month. If PED of the hard disc is 3, what should be its new price? (Use initial value method) **07**
 b) Explain with suitable examples 'implicit cost' and 'explicit cost'. **07**

Section – II

- Q.5** a) Explain various functional aspects of make or buy decision. **06**
 b) Explain with a block diagram, various phases of a project life cycle. **08**
- Q.6** a) Explain: **08**
 1) preventive maintenance
 2) breakdown maintenance
 b) What do you mean by 'Value' of a product? What are the various types of values? **06**
- Q.7** a) Discuss with suitable examples the need to replace raw material of a product. **08**
 b) Explain various reasons for replacement of an asset. **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Use of a non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Robot Intelligence refers to: _____.
 - a) The ability of robots to have emotions
 - b) The physical strength of a robot
 - c) The ability of robots to learn from their environment and make decisions
 - d) The ability of robots to perform repetitive tasks
- 2) What are the characteristics of future robot tasks?
 - a) Limited adaptability and flexibility
 - b) Adaptability, flexibility, and autonomous decision-making
 - c) Strict reliance on pre-programmed instructions
 - d) Slow response to changing conditions
- 3) In the service industry, robots are often used for tasks like:

a) Manufacturing	b) Healthcare
c) Agriculture	d) Mining
- 4) Unmanned Ground Vehicles (UGV) are primarily designed for:
 - a) Aerial surveillance
 - b) Underwater exploration
 - c) Ground-based tasks without human intervention
 - d) Space exploration
- 5) When designing a robot cell layout, what is a crucial consideration to minimize interference and optimize workflow?
 - a) Maximizing machine density
 - b) Minimizing workspace separation
 - c) Optimizing robot speed
 - d) Reducing workcell size

- 6) Which programming method involves physically moving a robot arm through the desired path teaching it the required motions?
- Offline programming
 - Walk-through programming
 - Powered Lead-through programming
 - Visual programming
- 7) Slip in the context of WMR refers to:
- Smooth motion on flat surfaces
 - The loss of traction and wheel slippage
 - Precise positioning on uneven terrain
 - Reducing the wheel diameter
- 8) _____ configuration robot is preferred for pick and place operations.
- SCARA
 - Jointed-Arm
 - Spherical
 - Cartesian
- 9) For Spray coating application, which drive system is preferred _____.
- Hydraulic
 - Pneumatic
 - Electrical
 - Mechanical
- 10) The estimated value of robot at the end of its useful life is called _____.
- Depreciation cost
 - MARR
 - ROI
 - Salvage value
- 11) EUAC stands for _____ in economic analysis.
- Equivalent Uniform Annual Cost
 - Exact Uniform Annual Cost
 - Equivalent Universal Annual Cost
 - Equivalent Universal Approximate Cost
- 12) MARR for a project is decided by _____.
- Bank
 - Company
 - Central Government
 - RBI
- 13) _____ maintenance of robot is the case when maintenance crew is called in to repair a robot that breakdowns during regular operation.
- Preventive
 - Predictive
 - Remedial
 - All of the above
- 14) Engelberger reported the average MTBF for its robots as _____ hrs.
- 100
 - 200
 - 300
 - 400

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of a non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section – I

- Q.2** a) What are the key industries currently utilizing robotics technology, and how has this adoption evolved over the past decade? **07**
 b) What is robot intelligence? Write in detail about the Hierarchical control structure in a Real-time control system as prescribed by the National Bureau of Standards. **07**
- Q.3** a) What are the different methods of Lead-through programming? Assess their merits and demerits. **07**
 b) Enlist different types of robot cell layouts. Compare and contrast the different types of robot cell layouts. **07**
- Q.4** a) Define Mobile robots and enlist the types of land-based mobile robots. Explain the key issues for the locomotion of mobile robots. **07**
 b) What is slip in the context of WMR? Model the WMR for rolling without slip on flat terrain. **07**

Section – II

- Q.5** a) Elaborate on the features of the welding robot. **08**
 b) Elaborate on the features of the spray coating robot. **06**
- Q.6** a) Prepare a checklist for workforce acceptance to assess the potential for successfully implementing robotics in plant. **06**
 b) A robot installation project has an initial cost of \$85,000 and expected annual costs for operation and maintenance are estimated to be \$24,000. The project is expected to generate revenues of \$60,000 annually for four years, at which time the project will be retired. The estimated salvage value of the robot at the end of 4 years is \$ 40,000. **08**
 i) Determine the payback period for the project.
 ii) Determine the Equivalent uniform annual cost for the project using a 25% MARR.

iii) Determine the expected Return on investment to be derived from the investment.

Evaluate by all the methods separately, whether the robot project is economically feasible.

Given: Capital recovery factor and Sinking fund factor for 4 years is given below for various interest rates.

Interest Rates (%)	Capital Recovery factor	Sinking Fund factor
20	0.3863	0.1863
25	0.4234	0.1734
30	0.4616	0.1616
35	0.5008	0.1508

Q.7 a) What are the different types of robotics training that should take place in a company? **06**

b) The cost of the robot is \$80,000 and the user company wants to establish an optimum level of spare parts inventory. The company knows which components of robot are likely to fail and it wants to build its spare parts to a stock level at which total cost of inventory plus lost total production time is minimized. When a breakdown occurs, the repair time will average two hours if the required spare part is available. If it is not available, it will lose an average of 10 hours of production while the part is being ordered and delivered. In addition, rush delivery of the part will cost \$50 per order. The company estimates that the cost of downtime is \$100 per hour. The robot operates one shift of 8 hours per day for 250 days per year. The mean time between failure is 200 hours. The cost of inventory is 20% per year of the value of spare parts in stock. The following level indicates various alternative spare parts level and corresponding probability that the robot can be repaired using parts available in stock. **08**

Spare Parts level (\$)	Pr (Coverage)	Pr (no coverage)
0	0	1
5000	0.25	0.75
10000	0.4	0.6
20000	0.65	0.35
30000	0.8	0.2
40000	0.9	0.1
80000	1	0

i) Based on the data provided, determine the optimum level of spare parts inventory to maintain.

ii) At the level of inventory determined in part (a), determine the 'availability' of the robot.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Use of a non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) _____ configuration robot is preferred for pick and place operations.
 - a) SCARA
 - b) Jointed-Arm
 - c) Spherical
 - d) Cartesian
- 2) For Spray coating application, which drive system is preferred _____.
 - a) Hydraulic
 - b) Pneumatic
 - c) Electrical
 - d) Mechanical
- 3) The estimated value of robot at the end of its useful life is called _____.
 - a) Depreciation cost
 - b) MARR
 - c) ROI
 - d) Salvage value
- 4) EUAC stands for _____ in economic analysis.
 - a) Equivalent Uniform Annual Cost
 - b) Exact Uniform Annual Cost
 - c) Equivalent Universal Annual Cost
 - d) Equivalent Universal Approximate Cost
- 5) MARR for a project is decided by _____.
 - a) Bank
 - b) Company
 - c) Central Government
 - d) RBI
- 6) _____ maintenance of robot is the case when maintenance crew is called in to repair a robot that breakdowns during regular operation.
 - a) Preventive
 - b) Predictive
 - c) Remedial
 - d) All of the above
- 7) Engelberger reported the average MTBF for its robots as _____ hrs.
 - a) 100
 - b) 200
 - c) 300
 - d) 400
- 8) Robot Intelligence refers to: _____.
 - a) The ability of robots to have emotions
 - b) The physical strength of a robot
 - c) The ability of robots to learn from their environment and make decisions
 - d) The ability of robots to perform repetitive tasks

- 9)** What are the characteristics of future robot tasks?
- a) Limited adaptability and flexibility
 - b) Adaptability, flexibility, and autonomous decision-making
 - c) Strict reliance on pre-programmed instructions
 - d) Slow response to changing conditions
- 10)** In the service industry, robots are often used for tasks like:
- a) Manufacturing
 - b) Healthcare
 - c) Agriculture
 - d) Mining
- 11)** Unmanned Ground Vehicles (UGV) are primarily designed for:
- a) Aerial surveillance
 - b) Underwater exploration
 - c) Ground-based tasks without human intervention
 - d) Space exploration
- 12)** When designing a robot cell layout, what is a crucial consideration to minimize interference and optimize workflow?
- a) Maximizing machine density
 - b) Minimizing workspace separation
 - c) Optimizing robot speed
 - d) Reducing workcell size
- 13)** Which programming method involves physically moving a robot arm through the desired path teaching it the required motions?
- a) Offline programming
 - b) Walk-through programming
 - c) Powered Lead-through programming
 - d) Visual programming
- 14)** Slip in the context of WMR refers to:
- a) Smooth motion on flat surfaces
 - b) The loss of traction and wheel slippage
 - c) Precise positioning on uneven terrain
 - d) Reducing the wheel diameter

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of a non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section – I

- Q.2** a) What are the key industries currently utilizing robotics technology, and how has this adoption evolved over the past decade? **07**
 b) What is robot intelligence? Write in detail about the Hierarchical control structure in a Real-time control system as prescribed by the National Bureau of Standards. **07**
- Q.3** a) What are the different methods of Lead-through programming? Assess their merits and demerits. **07**
 b) Enlist different types of robot cell layouts. Compare and contrast the different types of robot cell layouts. **07**
- Q.4** a) Define Mobile robots and enlist the types of land-based mobile robots. Explain the key issues for the locomotion of mobile robots. **07**
 b) What is slip in the context of WMR? Model the WMR for rolling without slip on flat terrain. **07**

Section – II

- Q.5** a) Elaborate on the features of the welding robot. **08**
 b) Elaborate on the features of the spray coating robot. **06**
- Q.6** a) Prepare a checklist for workforce acceptance to assess the potential for successfully implementing robotics in plant. **06**
 b) A robot installation project has an initial cost of \$85,000 and expected annual costs for operation and maintenance are estimated to be \$24,000. The project is expected to generate revenues of \$60,000 annually for four years, at which time the project will be retired. The estimated salvage value of the robot at the end of 4 years is \$ 40,000. **08**
 i) Determine the payback period for the project.
 ii) Determine the Equivalent uniform annual cost for the project using a 25% MARR.

iii) Determine the expected Return on investment to be derived from the investment.

Evaluate by all the methods separately, whether the robot project is economically feasible.

Given: Capital recovery factor and Sinking fund factor for 4 years is given below for various interest rates.

Interest Rates (%)	Capital Recovery factor	Sinking Fund factor
20	0.3863	0.1863
25	0.4234	0.1734
30	0.4616	0.1616
35	0.5008	0.1508

Q.7 a) What are the different types of robotics training that should take place in a company? **06**

b) The cost of the robot is \$80,000 and the user company wants to establish an optimum level of spare parts inventory. The company knows which components of robot are likely to fail and it wants to build its spare parts to a stock level at which total cost of inventory plus lost total production time is minimized. When a breakdown occurs, the repair time will average two hours if the required spare part is available. If it is not available, it will lose an average of 10 hours of production while the part is being ordered and delivered. In addition, rush delivery of the part will cost \$50 per order. The company estimates that the cost of downtime is \$100 per hour. The robot operates one shift of 8 hours per day for 250 days per year. The mean time between failure is 200 hours. The cost of inventory is 20% per year of the value of spare parts in stock. The following level indicates various alternative spare parts level and corresponding probability that the robot can be repaired using parts available in stock. **08**

Spare Parts level (\$)	Pr (Coverage)	Pr (no coverage)
0	0	1
5000	0.25	0.75
10000	0.4	0.6
20000	0.65	0.35
30000	0.8	0.2
40000	0.9	0.1
80000	1	0

i) Based on the data provided, determine the optimum level of spare parts inventory to maintain.

ii) At the level of inventory determined in part (a), determine the 'availability' of the robot.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Use of a non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) EUAC stands for _____ in economic analysis.
 - a) Equivalent Uniform Annual Cost
 - b) Exact Uniform Annual Cost
 - c) Equivalent Universal Annual Cost
 - d) Equivalent Universal Approximate Cost
- 2) MARR for a project is decided by _____.
 - a) Bank
 - b) Company
 - c) Central Government
 - d) RBI
- 3) _____ maintenance of robot is the case when maintenance crew is called in to repair a robot that breakdowns during regular operation.
 - a) Preventive
 - b) Predictive
 - c) Remedial
 - d) All of the above
- 4) Engelberger reported the average MTBF for its robots as _____ hrs.
 - a) 100
 - b) 200
 - c) 300
 - d) 400
- 5) Robot Intelligence refers to: _____.
 - a) The ability of robots to have emotions
 - b) The physical strength of a robot
 - c) The ability of robots to learn from their environment and make decisions
 - d) The ability of robots to perform repetitive tasks
- 6) What are the characteristics of future robot tasks?
 - a) Limited adaptability and flexibility
 - b) Adaptability, flexibility, and autonomous decision-making
 - c) Strict reliance on pre-programmed instructions
 - d) Slow response to changing conditions
- 7) In the service industry, robots are often used for tasks like:
 - a) Manufacturing
 - b) Healthcare
 - c) Agriculture
 - d) Mining

- 8) Unmanned Ground Vehicles (UGV) are primarily designed for:
- Aerial surveillance
 - Underwater exploration
 - Ground-based tasks without human intervention
 - Space exploration
- 9) When designing a robot cell layout, what is a crucial consideration to minimize interference and optimize workflow?
- Maximizing machine density
 - Minimizing workspace separation
 - Optimizing robot speed
 - Reducing workcell size
- 10) Which programming method involves physically moving a robot arm through the desired path teaching it the required motions?
- Offline programming
 - Walk-through programming
 - Powered Lead-through programming
 - Visual programming
- 11) Slip in the context of WMR refers to:
- Smooth motion on flat surfaces
 - The loss of traction and wheel slippage
 - Precise positioning on uneven terrain
 - Reducing the wheel diameter
- 12) _____ configuration robot is preferred for pick and place operations.
- | | |
|--------------|----------------|
| a) SCARA | b) Jointed-Arm |
| c) Spherical | d) Cartesian |
- 13) For Spray coating application, which drive system is preferred _____.
- | | |
|---------------|---------------|
| a) Hydraulic | b) Pneumatic |
| c) Electrical | d) Mechanical |
- 14) The estimated value of robot at the end of its useful life is called _____.
- | | |
|----------------------|------------------|
| a) Depreciation cost | b) MARR |
| c) ROI | d) Salvage value |

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of a non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section – I

- Q.2** a) What are the key industries currently utilizing robotics technology, and how has this adoption evolved over the past decade? **07**
 b) What is robot intelligence? Write in detail about the Hierarchical control structure in a Real-time control system as prescribed by the National Bureau of Standards. **07**
- Q.3** a) What are the different methods of Lead-through programming? Assess their merits and demerits. **07**
 b) Enlist different types of robot cell layouts. Compare and contrast the different types of robot cell layouts. **07**
- Q.4** a) Define Mobile robots and enlist the types of land-based mobile robots. Explain the key issues for the locomotion of mobile robots. **07**
 b) What is slip in the context of WMR? Model the WMR for rolling without slip on flat terrain. **07**

Section – II

- Q.5** a) Elaborate on the features of the welding robot. **08**
 b) Elaborate on the features of the spray coating robot. **06**
- Q.6** a) Prepare a checklist for workforce acceptance to assess the potential for successfully implementing robotics in plant. **06**
 b) A robot installation project has an initial cost of \$85,000 and expected annual costs for operation and maintenance are estimated to be \$24,000. The project is expected to generate revenues of \$60,000 annually for four years, at which time the project will be retired. The estimated salvage value of the robot at the end of 4 years is \$ 40,000. **08**
 i) Determine the payback period for the project.
 ii) Determine the Equivalent uniform annual cost for the project using a 25% MARR.

iii) Determine the expected Return on investment to be derived from the investment.

Evaluate by all the methods separately, whether the robot project is economically feasible.

Given: Capital recovery factor and Sinking fund factor for 4 years is given below for various interest rates.

Interest Rates (%)	Capital Recovery factor	Sinking Fund factor
20	0.3863	0.1863
25	0.4234	0.1734
30	0.4616	0.1616
35	0.5008	0.1508

Q.7 a) What are the different types of robotics training that should take place in a company? **06**

b) The cost of the robot is \$80,000 and the user company wants to establish an optimum level of spare parts inventory. The company knows which components of robot are likely to fail and it wants to build its spare parts to a stock level at which total cost of inventory plus lost total production time is minimized. When a breakdown occurs, the repair time will average two hours if the required spare part is available. If it is not available, it will lose an average of 10 hours of production while the part is being ordered and delivered. In addition, rush delivery of the part will cost \$50 per order. The company estimates that the cost of downtime is \$100 per hour. The robot operates one shift of 8 hours per day for 250 days per year. The mean time between failure is 200 hours. The cost of inventory is 20% per year of the value of spare parts in stock. The following level indicates various alternative spare parts level and corresponding probability that the robot can be repaired using parts available in stock. **08**

Spare Parts level (\$)	Pr (Coverage)	Pr (no coverage)
0	0	1
5000	0.25	0.75
10000	0.4	0.6
20000	0.65	0.35
30000	0.8	0.2
40000	0.9	0.1
80000	1	0

i) Based on the data provided, determine the optimum level of spare parts inventory to maintain.

ii) At the level of inventory determined in part (a), determine the 'availability' of the robot.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Use of a non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Which programming method involves physically moving a robot arm through the desired path teaching it the required motions?
 - a) Offline programming
 - b) Walk-through programming
 - c) Powered Lead-through programming
 - d) Visual programming
- 2) Slip in the context of WMR refers to:
 - a) Smooth motion on flat surfaces
 - b) The loss of traction and wheel slippage
 - c) Precise positioning on uneven terrain
 - d) Reducing the wheel diameter
- 3) _____ configuration robot is preferred for pick and place operations.

a) SCARA	b) Jointed-Arm
c) Spherical	d) Cartesian
- 4) For Spray coating application, which drive system is preferred _____.

a) Hydraulic	b) Pneumatic
c) Electrical	d) Mechanical
- 5) The estimated value of robot at the end of its useful life is called _____.

a) Depreciation cost	b) MARR
c) ROI	d) Salvage value
- 6) EUAC stands for _____ in economic analysis.
 - a) Equivalent Uniform Annual Cost
 - b) Exact Uniform Annual Cost
 - c) Equivalent Universal Annual Cost
 - d) Equivalent Universal Approximate Cost
- 7) MARR for a project is decided by _____.

a) Bank	b) Company
c) Central Government	d) RBI

- 8) _____ maintenance of robot is the case when maintenance crew is called in to repair a robot that breakdowns during regular operation.
- a) Preventive
 - b) Predictive
 - c) Remedial
 - d) All of the above
- 9) Engelberger reported the average MTBF for its robots as _____ hrs.
- a) 100
 - b) 200
 - c) 300
 - d) 400
- 10) Robot Intelligence refers to: _____.
- a) The ability of robots to have emotions
 - b) The physical strength of a robot
 - c) The ability of robots to learn from their environment and make decisions
 - d) The ability of robots to perform repetitive tasks
- 11) What are the characteristics of future robot tasks?
- a) Limited adaptability and flexibility
 - b) Adaptability, flexibility, and autonomous decision-making
 - c) Strict reliance on pre-programmed instructions
 - d) Slow response to changing conditions
- 12) In the service industry, robots are often used for tasks like:
- a) Manufacturing
 - b) Healthcare
 - c) Agriculture
 - d) Mining
- 13) Unmanned Ground Vehicles (UGV) are primarily designed for:
- a) Aerial surveillance
 - b) Underwater exploration
 - c) Ground-based tasks without human intervention
 - d) Space exploration
- 14) When designing a robot cell layout, what is a crucial consideration to minimize interference and optimize workflow?
- a) Maximizing machine density
 - b) Minimizing workspace separation
 - c) Optimizing robot speed
 - d) Reducing workcell size

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Robotics (BTN02718)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Use of a non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary.

Section – I

- Q.2** a) What are the key industries currently utilizing robotics technology, and how has this adoption evolved over the past decade? **07**
 b) What is robot intelligence? Write in detail about the Hierarchical control structure in a Real-time control system as prescribed by the National Bureau of Standards. **07**
- Q.3** a) What are the different methods of Lead-through programming? Assess their merits and demerits. **07**
 b) Enlist different types of robot cell layouts. Compare and contrast the different types of robot cell layouts. **07**
- Q.4** a) Define Mobile robots and enlist the types of land-based mobile robots. Explain the key issues for the locomotion of mobile robots. **07**
 b) What is slip in the context of WMR? Model the WMR for rolling without slip on flat terrain. **07**

Section – II

- Q.5** a) Elaborate on the features of the welding robot. **08**
 b) Elaborate on the features of the spray coating robot. **06**
- Q.6** a) Prepare a checklist for workforce acceptance to assess the potential for successfully implementing robotics in plant. **06**
 b) A robot installation project has an initial cost of \$85,000 and expected annual costs for operation and maintenance are estimated to be \$24,000. The project is expected to generate revenues of \$60,000 annually for four years, at which time the project will be retired. The estimated salvage value of the robot at the end of 4 years is \$ 40,000. **08**
 i) Determine the payback period for the project.
 ii) Determine the Equivalent uniform annual cost for the project using a 25% MARR.

iii) Determine the expected Return on investment to be derived from the investment.

Evaluate by all the methods separately, whether the robot project is economically feasible.

Given: Capital recovery factor and Sinking fund factor for 4 years is given below for various interest rates.

Interest Rates (%)	Capital Recovery factor	Sinking Fund factor
20	0.3863	0.1863
25	0.4234	0.1734
30	0.4616	0.1616
35	0.5008	0.1508

Q.7 a) What are the different types of robotics training that should take place in a company? **06**

b) The cost of the robot is \$80,000 and the user company wants to establish an optimum level of spare parts inventory. The company knows which components of robot are likely to fail and it wants to build its spare parts to a stock level at which total cost of inventory plus lost total production time is minimized. When a breakdown occurs, the repair time will average two hours if the required spare part is available. If it is not available, it will lose an average of 10 hours of production while the part is being ordered and delivered. In addition, rush delivery of the part will cost \$50 per order. The company estimates that the cost of downtime is \$100 per hour. The robot operates one shift of 8 hours per day for 250 days per year. The mean time between failure is 200 hours. The cost of inventory is 20% per year of the value of spare parts in stock. The following level indicates various alternative spare parts level and corresponding probability that the robot can be repaired using parts available in stock. **08**

Spare Parts level (\$)	Pr (Coverage)	Pr (no coverage)
0	0	1
5000	0.25	0.75
10000	0.4	0.6
20000	0.65	0.35
30000	0.8	0.2
40000	0.9	0.1
80000	1	0

i) Based on the data provided, determine the optimum level of spare parts inventory to maintain.

ii) At the level of inventory determined in part (a), determine the 'availability' of the robot.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page. Answer MCQ/Objective type questions on Page No.3 only.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) What is the primary goal of automation in manufacturing?
 - a) Reduce workforce
 - b) Increase production speed and efficiency
 - c) Decrease product quality
 - d) Increase manual labour
- 2) Which of the following is an example of a basic automated process?
 - a) Handcrafting
 - b) 3D printing
 - c) Wood carving
 - d) Sewing by hand
- 3) What is the purpose of 3D CAD modeling in the manufacturing process?
 - a) Creating physical prototypes
 - b) Designing user interfaces
 - c) Modeling 2D graphics
 - d) Drafting blueprints
- 4) Which 3D printing technology is associated with the acronym "SLA"?
 - a) Solid Ground Curing (SGC) System
 - b) Solid Creation System
 - c) 3D Systems SLA
 - d) EOS' Stereos System
- 5) What does "SGC" stand for in 3D printing technology?
 - a) Solid Ground Curing
 - b) Solid Creation System
 - c) Stereolithography
 - d) Selective Laser Sintering
- 6) What does CAD stand for?
 - a) Computer-Aided Design
 - b) Computer-Aided Development
 - c) Computer-Activated Drawing
 - d) Computer-Appointed Diagram
- 7) In feature-based 3D CAD modeling, what are "features"?
 - a) Specific design elements with no parametric relations
 - b) Geometric shapes that cannot be edited
 - c) Parametric design elements like holes, fillets, and extrusions
 - d) 3D scans of physical objects

- 8) What is the primary goal of Rapid Tooling?
- a) To produce high-quality, long-lasting molds
 - b) To create functional prototypes quickly
 - c) To handcraft tools for manufacturing
 - d) To minimize the use of technology in tooling
- 9) Rapid Tooling is often used in which phase of product development?
- a) Conceptual design
 - b) Mass production
 - c) Market research
 - d) Distribution
- 10) Which of the following is NOT a key advantage of Rapid Tooling?
- a) Cost-effectiveness
 - b) High tool durability
 - c) Short lead times
 - d) Increased design flexibility
- 11) What does "STL" stand for in the context of 3D printing?
- a) Stereolithography
 - b) Standard Triangle Language
 - c) Structured Text Language
 - d) Solid Transition Layer
- 12) What is the primary purpose of an STL file in 3D printing?
- a) Storing color information for 3D models
 - b) Defining the dimensions of a 3D printer
 - c) Describing the geometry of a 3D object
 - d) Managing printer firmware
- 13) What is post-processing in the context of 3D printing?
- a) The initial setup of a 3D printer
 - b) The process of designing 3D models
 - c) Additional treatments or finishing Steps after 3D printing
 - d) The method of slicing 3D models for printing
- 14) Which phase of 3D printing involves post-processing?
- a) Modeling
 - b) Printing
 - c) Design
 - d) Finishing

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Assume suitable data if required
4) Use of scientific calculator is allowed.
5) Figure to the right indicates full marks.

Section – I

- Q.2** Enlist the types of 3D printing technologies and illustrate any 01 with neat sketch. **10**
- Q.3** Compare Automated processes in w.r.t 3D printing. **09**
- Q.4** Elaborate the Stratasys's Fused Deposition Modeling process with applications. **09**
- Q.5** Discuss Feature based 3D CAD modeling. **09**

Section – II

- Q.6** Enlist different types of Indirect tooling. Explain any 01 with neat sketch. **10**
- Q.7** What is meant by Rapid Tooling? Discuss Architecture of Rapid Tooling Integrated Manufacturing system. **09**
- Q.8** Discuss common errors in CAD to STL conversion. **09**
- Q.9** Describe techniques for improvement in surface finish and geometry in 3D Printing. **09**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page. Answer MCQ/Objective type questions on Page No.3 only.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) What is the primary goal of Rapid Tooling?
 - a) To produce high-quality, long-lasting molds
 - b) To create functional prototypes quickly
 - c) To handcraft tools for manufacturing
 - d) To minimize the use of technology in tooling
- 2) Rapid Tooling is often used in which phase of product development?
 - a) Conceptual design
 - b) Mass production
 - c) Market research
 - d) Distribution
- 3) Which of the following is NOT a key advantage of Rapid Tooling?
 - a) Cost-effectiveness
 - b) High tool durability
 - c) Short lead times
 - d) Increased design flexibility
- 4) What does "STL" stand for in the context of 3D printing?
 - a) Stereolithography
 - b) Standard Triangle Language
 - c) Structured Text Language
 - d) Solid Transition Layer
- 5) What is the primary purpose of an STL file in 3D printing?
 - a) Storing color information for 3D models
 - b) Defining the dimensions of a 3D printer
 - c) Describing the geometry of a 3D object
 - d) Managing printer firmware
- 6) What is post-processing in the context of 3D printing?
 - a) The initial setup of a 3D printer
 - b) The process of designing 3D models
 - c) Additional treatments or finishing Steps after 3D printing
 - d) The method of slicing 3D models for printing
- 7) Which phase of 3D printing involves post-processing?
 - a) Modeling
 - b) Printing
 - c) Design
 - d) Finishing

- 8) What is the primary goal of automation in manufacturing?
- a) Reduce workforce
 - b) Increase production speed and efficiency
 - c) Decrease product quality
 - d) Increase manual labour
- 9) Which of the following is an example of a basic automated process?
- a) Handcrafting
 - b) 3D printing
 - c) Wood carving
 - d) Sewing by hand
- 10) What is the purpose of 3D CAD modeling in the manufacturing process?
- a) Creating physical prototypes
 - b) Designing user interfaces
 - c) Modeling 2D graphics
 - d) Drafting blueprints
- 11) Which 3D printing technology is associated with the acronym "SLA"?
- a) Solid Ground Curing (SGC) System
 - b) Solid Creation System
 - c) 3D Systems SLA
 - d) EOS' Stereos System
- 12) What does "SGC" stand for in 3D printing technology?
- a) Solid Ground Curing
 - b) Solid Creation System
 - c) Stereolithography
 - d) Selective Laser Sintering
- 13) What does CAD stand for?
- a) Computer-Aided Design
 - b) Computer-Aided Development
 - c) Computer-Activated Drawing
 - d) Computer-Appointed Diagram
- 14) In feature-based 3D CAD modeling, what are "features"?
- a) Specific design elements with no parametric relations
 - b) Geometric shapes that cannot be edited
 - c) Parametric design elements like holes, fillets, and extrusions
 - d) 3D scans of physical objects

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Assume suitable data if required
4) Use of scientific calculator is allowed.
5) Figure to the right indicates full marks.

Section – I

- Q.2** Enlist the types of 3D printing technologies and illustrate any 01 with neat sketch. **10**
- Q.3** Compare Automated processes in w.r.t 3D printing. **09**
- Q.4** Elaborate the Stratasys's Fused Deposition Modeling process with applications. **09**
- Q.5** Discuss Feature based 3D CAD modeling. **09**

Section – II

- Q.6** Enlist different types of Indirect tooling. Explain any 01 with neat sketch. **10**
- Q.7** What is meant by Rapid Tooling? Discuss Architecture of Rapid Tooling Integrated Manufacturing system. **09**
- Q.8** Discuss common errors in CAD to STL conversion. **09**
- Q.9** Describe techniques for improvement in surface finish and geometry in 3D Printing. **09**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page. Answer MCQ/Objective type questions on Page No.3 only.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) What does "STL" stand for in the context of 3D printing?
 - a) Stereolithography
 - b) Standard Triangle Language
 - c) Structured Text Language
 - d) Solid Transition Layer
- 2) What is the primary purpose of an STL file in 3D printing?
 - a) Storing color information for 3D models
 - b) Defining the dimensions of a 3D printer
 - c) Describing the geometry of a 3D object
 - d) Managing printer firmware
- 3) What is post-processing in the context of 3D printing?
 - a) The initial setup of a 3D printer
 - b) The process of designing 3D models
 - c) Additional treatments or finishing Steps after 3D printing
 - d) The method of slicing 3D models for printing
- 4) Which phase of 3D printing involves post-processing?
 - a) Modeling
 - b) Printing
 - c) Design
 - d) Finishing
- 5) What is the primary goal of automation in manufacturing?
 - a) Reduce workforce
 - b) Increase production speed and efficiency
 - c) Decrease product quality
 - d) Increase manual labour
- 6) Which of the following is an example of a basic automated process?
 - a) Handcrafting
 - b) 3D printing
 - c) Wood carving
 - d) Sewing by hand
- 7) What is the purpose of 3D CAD modeling in the manufacturing process?
 - a) Creating physical prototypes
 - b) Designing user interfaces
 - c) Modeling 2D graphics
 - d) Drafting blueprints

- 8) Which 3D printing technology is associated with the acronym "SLA"?
- a) Solid Ground Curing (SGC) System
 - b) Solid Creation System
 - c) 3D Systems SLA
 - d) EOS' Stereos System
- 9) What does "SGC" stand for in 3D printing technology?
- a) Solid Ground Curing
 - b) Solid Creation System
 - c) Stereolithography
 - d) Selective Laser Sintering
- 10) What does CAD stand for?
- a) Computer-Aided Design
 - b) Computer-Aided Development
 - c) Computer-Activated Drawing
 - d) Computer-Appointed Diagram
- 11) In feature-based 3D CAD modeling, what are "features"?
- a) Specific design elements with no parametric relations
 - b) Geometric shapes that cannot be edited
 - c) Parametric design elements like holes, fillets, and extrusions
 - d) 3D scans of physical objects
- 12) What is the primary goal of Rapid Tooling?
- a) To produce high-quality, long-lasting molds
 - b) To create functional prototypes quickly
 - c) To handcraft tools for manufacturing
 - d) To minimize the use of technology in tooling
- 13) Rapid Tooling is often used in which phase of product development?
- a) Conceptual design
 - b) Mass production
 - c) Market research
 - d) Distribution
- 14) Which of the following is NOT a key advantage of Rapid Tooling?
- a) Cost-effectiveness
 - b) High tool durability
 - c) Short lead times
 - d) Increased design flexibility

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Assume suitable data if required
4) Use of scientific calculator is allowed.
5) Figure to the right indicates full marks.

Section – I

- Q.2** Enlist the types of 3D printing technologies and illustrate any 01 with neat sketch. **10**
- Q.3** Compare Automated processes in w.r.t 3D printing. **09**
- Q.4** Elaborate the Stratasys's Fused Deposition Modeling process with applications. **09**
- Q.5** Discuss Feature based 3D CAD modeling. **09**

Section – II

- Q.6** Enlist different types of Indirect tooling. Explain any 01 with neat sketch. **10**
- Q.7** What is meant by Rapid Tooling? Discuss Architecture of Rapid Tooling Integrated Manufacturing system. **09**
- Q.8** Discuss common errors in CAD to STL conversion. **09**
- Q.9** Describe techniques for improvement in surface finish and geometry in 3D Printing. **09**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page. Answer MCQ/Objective type questions on Page No.3 only.
 3) Assume suitable data if required.
 4) Use of scientific calculator is allowed.
 5) Figure to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) What does CAD stand for?

a) Computer-Aided Design	b) Computer-Aided Development
c) Computer-Activated Drawing	d) Computer-Appointed Diagram
- 2) In feature-based 3D CAD modeling, what are "features"?
 - a) Specific design elements with no parametric relations
 - b) Geometric shapes that cannot be edited
 - c) Parametric design elements like holes, fillets, and extrusions
 - d) 3D scans of physical objects
- 3) What is the primary goal of Rapid Tooling?
 - a) To produce high-quality, long-lasting molds
 - b) To create functional prototypes quickly
 - c) To handcraft tools for manufacturing
 - d) To minimize the use of technology in tooling
- 4) Rapid Tooling is often used in which phase of product development?

a) Conceptual design	b) Mass production
c) Market research	d) Distribution
- 5) Which of the following is NOT a key advantage of Rapid Tooling?

a) Cost-effectiveness	b) High tool durability
c) Short lead times	d) Increased design flexibility
- 6) What does "STL" stand for in the context of 3D printing?

a) Stereolithography	b) Standard Triangle Language
c) Structured Text Language	d) Solid Transition Layer
- 7) What is the primary purpose of an STL file in 3D printing?
 - a) Storing color information for 3D models
 - b) Defining the dimensions of a 3D printer
 - c) Describing the geometry of a 3D object
 - d) Managing printer firmware

- 8) What is post-processing in the context of 3D printing?
- a) The initial setup of a 3D printer
 - b) The process of designing 3D models
 - c) Additional treatments or finishing Steps after 3D printing
 - d) The method of slicing 3D models for printing
- 9) Which phase of 3D printing involves post-processing?
- a) Modeling
 - b) Printing
 - c) Design
 - d) Finishing
- 10) What is the primary goal of automation in manufacturing?
- a) Reduce workforce
 - b) Increase production speed and efficiency
 - c) Decrease product quality
 - d) Increase manual labour
- 11) Which of the following is an example of a basic automated process?
- a) Handcrafting
 - b) 3D printing
 - c) Wood carving
 - d) Sewing by hand
- 12) What is the purpose of 3D CAD modeling in the manufacturing process?
- a) Creating physical prototypes
 - b) Designing user interfaces
 - c) Modeling 2D graphics
 - d) Drafting blueprints
- 13) Which 3D printing technology is associated with the acronym "SLA"?
- a) Solid Ground Curing (SGC) System
 - b) Solid Creation System
 - c) 3D Systems SLA
 - d) EOS' Stereos System
- 14) What does "SGC" stand for in 3D printing technology?
- a) Solid Ground Curing
 - b) Solid Creation System
 - c) Stereolithography
 - d) Selective Laser Sintering

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced topics on 3D Printing (BTN02719)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
3) Assume suitable data if required
4) Use of scientific calculator is allowed.
5) Figure to the right indicates full marks.

Section – I

- Q.2** Enlist the types of 3D printing technologies and illustrate any 01 with neat sketch. **10**
- Q.3** Compare Automated processes in w.r.t 3D printing. **09**
- Q.4** Elaborate the Stratasys's Fused Deposition Modeling process with applications. **09**
- Q.5** Discuss Feature based 3D CAD modeling. **09**

Section – II

- Q.6** Enlist different types of Indirect tooling. Explain any 01 with neat sketch. **10**
- Q.7** What is meant by Rapid Tooling? Discuss Architecture of Rapid Tooling Integrated Manufacturing system. **09**
- Q.8** Discuss common errors in CAD to STL conversion. **09**
- Q.9** Describe techniques for improvement in surface finish and geometry in 3D Printing. **09**

Seat
No.

--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Resources, Economics and Environment (BTN02716)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which of the energy resources were considered for large scale use after the oil crisis of 1973?
 - a) Conventional Sources
 - b) Non-Conventional Sources
 - c) Non-renewable sources
 - d) Primary Sources-
- 2) Which of the statements is correct about Solar Energy?
 - a) It is a renewable and conventional source of energy
 - b) It is a non-renewable and non-conventional source of energy
 - c) It is a renewable and non-conventional source of energy
 - d) It is a non-renewable source of energy
- 3) Kyoto Protocol launched in _____?
 - a) India
 - b) Japan
 - c) China
 - d) U.S.
- 4) The availability of Renewable energy sources is _____.
 - a) uncertain
 - b) constant
 - c) high
 - d) regular
- 5) Which is the Following is Environmental impact?
 - a) Soil damage
 - b) Gas leakage
 - c) Air pollution
 - d) Temperature
- 6) The only country having a full-fledged ministry for Development of New and Renewable Resources is _____.
 - a) India
 - b) Bangladesh
 - c) USA
 - d) China
- 7) Carbon Credits also called as?
 - a) Carbon
 - b) Pollution
 - c) Emission
 - d) Carbon Offset
- 8) Preferences are nothing but Choice given by person _____.
 - a) True
 - b) False
- 9) IRR stands for _____.
 - a) International Rate Recover
 - b) International Rate Return
 - c) a & b
 - d) None of the Above

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Resources, Economics and Environment (BTN02716)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
2) Assume suitable data, diagrams if required.
3) Use of scientific calculator is allowed.
4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Draw and Explain in detailed “Energy Flow diagram” **04**
 - b) Explain the Linkage between “Energy & Development.” **05**
 - c) What is the importance of Time value-discount rate in Economics Of? Energy? **05**
- Q.3 Solve:**
- a) Explain in detailed “Global Energy Use in India”. **04**
 - b) Explain “Life cycle energy assessment” of energy Quality. **05**
 - c) Write a short note on “Commercial Energy sources.” **05**
- Q.4 Solve:**
- a) Differentiate between Primary and Secondary Energy resources. **04**
 - b) Define & Explain the term “Kaya identity”. **05**
 - c) Explain following terms for selecting Energy Projects. **05**
 - i) Net Present Value (NPV)
 - ii) Internal Rate of Return (IRR)

Section – II

- Q.5 Solve:**
- a) How Carbon Credits performed on Global platform? Explain. **04**
 - b) Explain the term “Global Warming”. **05**
 - c) Define Pollution & Explain types of Pollution. **05**
- Q.6 Solve:**
- a) Explain “Kyoto Protocol” for Energy & Environment. **04**
 - b) Write a short note “Preferences & Utility” of energy. **05**
 - c) Write a short note on “Bioenergy”. **05**
- Q.7 Solve:**
- a) How safely Water & Land used for energy & environment? **04**
 - b) Explain “Betting on Planet Simon-Eherlich”. **05**
 - c) Write a Short note on “Future energy demand & Supply.” **05**

- 9) Which of the statements is correct about Solar Energy?
- a) It is a renewable and conventional source of energy
 - b) It is a non-renewable and non-conventional source of energy
 - c) It is a renewable and non-conventional source of energy
 - d) It is a non-renewable source of energy
- 10) Kyoto Protocol launched in _____?
- a) India
 - b) Japan
 - c) China
 - d) U.S.
- 11) The availability of Renewable energy sources is _____.
- a) uncertain
 - b) constant
 - c) high
 - d) regular
- 12) Which of the following is Environmental impact?
- a) Soil damage
 - b) Gas leakage
 - c) Air pollution
 - d) Temperature
- 13) The only country having a full-fledged ministry for Development of New and Renewable Resources is _____.
- a) India
 - b) Bangladesh
 - c) USA
 - d) China
- 14) Carbon Credits also called as?
- a) Carbon
 - b) Pollution
 - c) Emission
 - d) Carbon Offset

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Energy Resources, Economics and Environment (BTN02716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Assume suitable data, diagrams if required.
 3) Use of scientific calculator is allowed.
 4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Draw and Explain in detailed “Energy Flow diagram” **04**
 - b) Explain the Linkage between “Energy & Development.” **05**
 - c) What is the importance of Time value-discount rate in Economics Of? Energy? **05**
- Q.3 Solve:**
- a) Explain in detailed “Global Energy Use in India”. **04**
 - b) Explain “Life cycle energy assessment” of energy Quality. **05**
 - c) Write a short note on “Commercial Energy sources.” **05**
- Q.4 Solve:**
- a) Differentiate between Primary and Secondary Energy resources. **04**
 - b) Define & Explain the term “Kaya identity”. **05**
 - c) Explain following terms for selecting Energy Projects. **05**
 - i) Net Present Value (NPV)
 - ii) Internal Rate of Return (IRR)

Section – II

- Q.5 Solve:**
- a) How Carbon Credits performed on Global platform? Explain. **04**
 - b) Explain the term “Global Warming”. **05**
 - c) Define Pollution & Explain types of Pollution. **05**
- Q.6 Solve:**
- a) Explain “Kyoto Protocol” for Energy & Environment. **04**
 - b) Write a short note “Preferences & Utility” of energy. **05**
 - c) Write a short note on “Bioenergy”. **05**
- Q.7 Solve:**
- a) How safely Water & Land used for energy & environment? **04**
 - b) Explain “Betting on Planet Simon-Eherlich”. **05**
 - c) Write a Short note on “Future energy demand & Supply.” **05**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Resources, Economics and Environment (BTN02716)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
2) Assume suitable data, diagrams if required.
3) Use of scientific calculator is allowed.
4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Draw and Explain in detailed “Energy Flow diagram” **04**
 - b) Explain the Linkage between “Energy & Development.” **05**
 - c) What is the importance of Time value-discount rate in Economics Of? Energy? **05**
- Q.3 Solve:**
- a) Explain in detailed “Global Energy Use in India”. **04**
 - b) Explain “Life cycle energy assessment” of energy Quality. **05**
 - c) Write a short note on “Commercial Energy sources.” **05**
- Q.4 Solve:**
- a) Differentiate between Primary and Secondary Energy resources. **04**
 - b) Define & Explain the term “Kaya identity”. **05**
 - c) Explain following terms for selecting Energy Projects. **05**
 - i) Net Present Value (NPV)
 - ii) Internal Rate of Return (IRR)

Section – II

- Q.5 Solve:**
- a) How Carbon Credits performed on Global platform? Explain. **04**
 - b) Explain the term “Global Warming”. **05**
 - c) Define Pollution & Explain types of Pollution. **05**
- Q.6 Solve:**
- a) Explain “Kyoto Protocol” for Energy & Environment. **04**
 - b) Write a short note “Preferences & Utility” of energy. **05**
 - c) Write a short note on “Bioenergy”. **05**
- Q.7 Solve:**
- a) How safely Water & Land used for energy & environment? **04**
 - b) Explain “Betting on Planet Simon-Eherlich”. **05**
 - c) Write a Short note on “Future energy demand & Supply.” **05**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Energy Resources, Economics and Environment (BTN02716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) The only country having a full-fledged ministry for Development of New and Renewable Resources is _____.
 - a) India
 - b) Bangladesh
 - c) USA
 - d) China
- 2) Carbon Credits also called as?
 - a) Carbon
 - b) Pollution
 - c) Emission
 - d) Carbon Offset
- 3) Preferences are nothing but Choice given by person _____.
 - a) True
 - b) False
- 4) IRR stands for _____.
 - a) International Rate Recover
 - b) International Rate Return
 - c) a & b
 - d) None of the Above
- 5) Which is the First largest Thermal Power plant in India?
 - a) Meru
 - b) Everest
 - c) Himalaya
 - d) Vindhychal
- 6) How many Phases in "National Solar Mission".
 - a) 1
 - b) 4
 - c) 3
 - d) 5
- 7) Purpose of "Energy Audit" is to access the nature and extent risk of harm to Human health & Environment?
 - a) True
 - b) False
- 8) One carbon credit permit emission of One Ton of _____.
 - a) Petrol
 - b) Coal
 - c) Diesel
 - d) Co2 or GHG
- 9) What is the major problem with wind energy?
 - a) Generates energy from wind
 - b) It is a renewable source of energy
 - c) Requires large area of land.
 - d) Compact and does not require large area of land

- 10)** Which of the energy resources were considered for large scale use after the oil crisis of 1973?
- a) Conventional Sources b) Non-Conventional Sources
c) Non-renewable sources d) Primary Sources-
- 11)** Which of the statements is correct about Solar Energy?
- a) It is a renewable and conventional source of energy
b) It is a non-renewable and non-conventional source of energy
c) It is a renewable and non-conventional source of energy
d) It is a non-renewable source of energy
- 12)** Kyoto Protocol launched in _____?
- a) India b) Japan
c) China d) U.S.
- 13)** The availability of Renewable energy sources is _____.
- a) uncertain b) constant
c) high d) regular
- 14)** Which is the Following is Environmental impact?
- a) Soil damage b) Gas leakage
c) Air pollution d) Temperature

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Energy Resources, Economics and Environment (BTN02716)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
2) Assume suitable data, diagrams if required.
3) Use of scientific calculator is allowed.
4) Figures to the right indicate full marks.

Section – I

- Q.2 Solve:**
- a) Draw and Explain in detailed “Energy Flow diagram” **04**
 - b) Explain the Linkage between “Energy & Development.” **05**
 - c) What is the importance of Time value-discount rate in Economics Of? Energy? **05**
- Q.3 Solve:**
- a) Explain in detailed “Global Energy Use in India”. **04**
 - b) Explain “Life cycle energy assessment” of energy Quality. **05**
 - c) Write a short note on “Commercial Energy sources.” **05**
- Q.4 Solve:**
- a) Differentiate between Primary and Secondary Energy resources. **04**
 - b) Define & Explain the term “Kaya identity”. **05**
 - c) Explain following terms for selecting Energy Projects. **05**
 - i) Net Present Value (NPV)
 - ii) Internal Rate of Return (IRR)

Section – II

- Q.5 Solve:**
- a) How Carbon Credits performed on Global platform? Explain. **04**
 - b) Explain the term “Global Warming”. **05**
 - c) Define Pollution & Explain types of Pollution. **05**
- Q.6 Solve:**
- a) Explain “Kyoto Protocol” for Energy & Environment. **04**
 - b) Write a short note “Preferences & Utility” of energy. **05**
 - c) Write a short note on “Bioenergy”. **05**
- Q.7 Solve:**
- a) How safely Water & Land used for energy & environment? **04**
 - b) Explain “Betting on Planet Simon-Eherlich”. **05**
 - c) Write a Short note on “Future energy demand & Supply.” **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Attempt the following single correct answer type questions. 14

- 1) Refusal to adopt and use opportunities to make changes in production _____ entrepreneurs.

a) Fabian	b) Imitative
c) Innovative	d) Drone
- 2) Individuals are motivated by psychological and economic rewards _____.

a) Pure	b) Induced
c) Motivated	d) Spontaneous
- 3) Which of the following is not a characteristic of entrepreneurship?

a) Creative activity	b) Innovation
c) Risk taking	d) Managerial training
- 4) One of the disadvantages of a franchise business for a franchisee is _____.

a) Lack of independence	b) Franchise businesses typically have a high failure rate
c) Lack of brand identity	d) Training is not normally provided by the franchisor
- 5) _____ units provide inputs to other industries.

a) Export	b) Small
c) Ancillary	d) None of these
- 6) For small scale business which type of business idea will be perfect?

a) the joint stock business	b) the sole Proprietorship business
c) the limited private business	d) the company business
- 7) At breakeven point _____.

a) Total expenses = Total revenue	b) Total expenses > Total revenue
c) Total expenses < Total revenue	d) Any of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain the types of entrepreneurs with examples. **07**
b) Discuss characteristics and qualities of entrepreneur. **07**
- Q.3** a) Write a note on **07**
i) EDP
ii) Franchising
b) What is outsourcing? Explain its characteristics. **07**
- Q.4** a) Explain corporate entrepreneurship/intrapreneurship with suitable examples. **07**
b) Enlist financial and technological problems faced by new entrepreneurs. **07**

Section – II

- Q.5** a) Explain sole proprietorship type of business ownership with respect to its important aspects, advantages and limitations. **07**
b) Write a note on financial appraisal. **07**
- Q.6** a) Explain SWOT analysis with suitable example. **07**
b) Explain in details SISI and SIDBI. **07**
- Q.7** a) Write steps in setting up a small unit. **07**
b) Discuss in brief contents of project report. **07**

- 9) Individuals are motivated by psychological and economic rewards _____.
a) Pure
b) Induced
c) Motivated
d) Spontaneous
- 10) Which of the following is not a characteristic of entrepreneurship?
a) Creative activity
b) Innovation
c) Risk taking
d) Managerial training
- 11) One of the disadvantages of a franchise business for a franchisee is _____.
a) Lack of independence
b) Franchise businesses typically have a high failure rate
c) Lack of brand identity
d) Training is not normally provided by the franchisor
- 12) _____ units provide inputs to other industries.
a) Export
b) Small
c) Ancillary
d) None of these
- 13) For small scale business which type of business idea will be perfect?
a) the joint stock business
b) the sole Proprietorship business
c) the limited private business
d) the company business
- 14) At breakeven point _____.
a) Total expenses = Total revenue
b) Total expenses > Total revenue
c) Total expenses < Total revenue
d) Any of the above

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain the types of entrepreneurs with examples. **07**
b) Discuss characteristics and qualities of entrepreneur. **07**
- Q.3** a) Write a note on **07**
i) EDP
ii) Franchising
b) What is outsourcing? Explain its characteristics. **07**
- Q.4** a) Explain corporate entrepreneurship/intrapreneurship with suitable examples. **07**
b) Enlist financial and technological problems faced by new entrepreneurs. **07**

Section – II

- Q.5** a) Explain sole proprietorship type of business ownership with respect to its important aspects, advantages and limitations. **07**
b) Write a note on financial appraisal. **07**
- Q.6** a) Explain SWOT analysis with suitable example. **07**
b) Explain in details SISI and SIDBI. **07**
- Q.7** a) Write steps in setting up a small unit. **07**
b) Discuss in brief contents of project report. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Attempt the following single correct answer type questions. 14

- 1) Which of the following is the short term source of finance?
 - a) Lease finance
 - b) Hire Purchase
 - c) Public deposits
 - d) Trade credit
- 2) EPC stands for _____.
 - a) Entrepreneurs Product Centre
 - b) Export Promotion Council
 - c) Export Production Company
 - d) Entrepreneurship Progress Council
- 3) Market potential of the project report includes _____.
 - a) demand and supply conditions
 - b) market strategy
 - c) after sales service
 - d) all the above
- 4) Which of the following is a function of SIDBI?
 - a) Extension of seed capital
 - b) Discounting of bills
 - c) Providing factoring services
 - d) All of the above
- 5) Refusal to adopt and use opportunities to make changes in production _____ entrepreneurs.
 - a) Fabian
 - b) Imitative
 - c) Innovative
 - d) Drone
- 6) Individuals are motivated by psychological and economic rewards _____.
 - a) Pure
 - b) Induced
 - c) Motivated
 - d) Spontaneous
- 7) Which of the following is not a characteristic of entrepreneurship?
 - a) Creative activity
 - b) Innovation
 - c) Risk taking
 - d) Managerial training
- 8) One of the disadvantages of a franchise business for a franchisee is _____.
 - a) Lack of independence
 - b) Franchise businesses typically have a high failure rate
 - c) Lack of brand identity
 - d) Training is not normally provided by the franchisor

- 9) _____ units provide inputs to other industries.
- a) Export
 - b) Small
 - c) Ancillary
 - d) None of these
- 10) For small scale business which type of business idea will be perfect?
- a) the joint stock business
 - b) the sole Proprietorship business
 - c) the limited private business
 - d) the company business
- 11) At breakeven point _____.
- a) Total expenses = Total revenue
 - b) Total expenses > Total revenue
 - c) Total expenses < Total revenue
 - d) Any of the above
- 12) SWOT stands for strength, weakness, opportunity, and _____.
- a) Treat
 - b) Threat
 - c) Talent
 - d) Team
- 13) The Business model canvas was initially proposed by _____.
- a) John Schumpeter
 - b) Peter Drucker
 - c) Alexander Osterwalder
 - d) Ash Maurya
- 14) _____ can be defined as a specifically evolved work plan densed to achieve a specific objective within a specific period of time.
- a) Idea generation
 - b) Opportunity Scanning
 - c) Project
 - d) Strategy

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain the types of entrepreneurs with examples. **07**
b) Discuss characteristics and qualities of entrepreneur. **07**
- Q.3** a) Write a note on **07**
i) EDP
ii) Franchising
b) What is outsourcing? Explain its characteristics. **07**
- Q.4** a) Explain corporate entrepreneurship/intrapreneurship with suitable examples. **07**
b) Enlist financial and technological problems faced by new entrepreneurs. **07**

Section – II

- Q.5** a) Explain sole proprietorship type of business ownership with respect to its important aspects, advantages and limitations. **07**
b) Write a note on financial appraisal. **07**
- Q.6** a) Explain SWOT analysis with suitable example. **07**
b) Explain in details SISI and SIDBI. **07**
- Q.7** a) Write steps in setting up a small unit. **07**
b) Discuss in brief contents of project report. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Attempt the following single correct answer type questions. 14

- 1) For small scale business which type of business idea will be perfect?
 - a) the joint stock business
 - b) the sole Proprietorship business
 - c) the limited private business
 - d) the company business
- 2) At breakeven point _____.
 - a) Total expenses = Total revenue
 - b) Total expenses > Total revenue
 - c) Total expenses < Total revenue
 - d) Any of the above
- 3) SWOT stands for strength, weakness, opportunity, and _____.

a) Treat	b) Threat
c) Talent	d) Team
- 4) The Business model canvas was initially proposed by _____.

a) John Schumpeter	b) Peter Drucker
c) Alexander Osterwalder	d) Ash Maurya
- 5) _____ can be defined as a specifically evolved work plan densed to achieve a specific objective within a specific period of time.

a) Idea generation	b) Opportunity Scanning
c) Project	d) Strategy
- 6) Which of the following is the short term source of finance?

a) Lease finance	b) Hire Purchase
c) Public deposits	d) Trade credit
- 7) EPC stands for _____.
 - a) Entrepreneurs Product Centre
 - b) Export Promotion Council
 - c) Export Production Company
 - d) Entrepreneurship Progress Council

- 8) Market potential of the project report includes _____.
a) demand and supply conditions b) market strategy
c) after sales service d) all the above
- 9) Which of the following is a function of SIDBI?
a) Extension of seed capital b) Discounting of bills
c) Providing factoring services d) All of the above
- 10) Refusal to adopt and use opportunities to make changes in production _____ entrepreneurs.
a) Fabian b) Imitative
c) Innovative d) Drone
- 11) Individuals are motivated by psychological and economic rewards _____.
a) Pure b) Induced
c) Motivated d) Spontaneous
- 12) Which of the following is not a characteristic of entrepreneurship?
a) Creative activity b) Innovation
c) Risk taking d) Managerial training
- 13) One of the disadvantages of a franchise business for a franchisee is _____.
a) Lack of independence
b) Franchise businesses typically have a high failure rate
c) Lack of brand identity
d) Training is not normally provided by the franchisor
- 14) _____ units provide inputs to other industries.
a) Export b) Small
c) Ancillary d) None of these

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (BTN02711)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain the types of entrepreneurs with examples. **07**
b) Discuss characteristics and qualities of entrepreneur. **07**
- Q.3** a) Write a note on **07**
i) EDP
ii) Franchising
b) What is outsourcing? Explain its characteristics. **07**
- Q.4** a) Explain corporate entrepreneurship/intrapreneurship with suitable examples. **07**
b) Enlist financial and technological problems faced by new entrepreneurs. **07**

Section – II

- Q.5** a) Explain sole proprietorship type of business ownership with respect to its important aspects, advantages and limitations. **07**
b) Write a note on financial appraisal. **07**
- Q.6** a) Explain SWOT analysis with suitable example. **07**
b) Explain in details SISI and SIDBI. **07**
- Q.7** a) Write steps in setting up a small unit. **07**
b) Discuss in brief contents of project report. **07**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Draw neat-labelled diagrams wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Operations research is the application of _____ methods to arrive at the optimal solutions to the problem.

a) economical	b) scientific
c) a and b both	d) artistic
- 2) In operations research, the _____ are prepared for situations.

a) mathematical models	b) physical models diagrammatic
c) diagrammatic models	d) None of above
- 3) Operations management can be defined as the application of _____ to a problem within a system to yield the optimal solution.

a) Suitable manpower	b) mathematical techniques, models, and tools
c) Financial operations	d) None of above
- 4) OR can evaluate only the effects of _____.

a) Personnel factors	b) Financial factors
c) Numeric and quantifiable factors	d) None of above
- 5) The objective function and constraints are functions of two types of variables, _____ variables and _____ variables.

a) Positive and negative	b) Controllable and uncontrollable
c) Strong and weak	d) None of the above
- 6) OR has a characteristic that it is done by a team of _____.

a) Scientists	b) Mathematicians
c) Academics	d) All the above

- 7) Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints?
- a) Queuing Theory
 - b) Waiting Line
 - c) Both a and b
 - d) Linear Programming
- 8) The Operations research technique which helps in minimizing total waiting and service costs is _____.
- a) Queuing Theory
 - b) Decision Theory
 - c) Both a and b
 - d) None of the above
- 9) In graphical representation the bounded region is known as _____ region.
- a) solution
 - b) basic solution
 - c) feasible solution
 - d) optimal
- 10) Graphical optimal value for Z can be obtained from _____.
- a) Corner points of feasible region
 - b) Corner points of the solution region
 - c) Both a and b
 - d) none of the above
- 11) In assignment problem of maximization, the objective is to maximize _____.
- a) Profit
 - b) Optimization
 - c) Cost
 - d) None of the above
- 12) With the transportation technique, the initial solution can be generated in any fashion one chooses. The only restriction is that _____.
- a) the edge constraints for supply and demand are satisfied
 - b) the solution is not degenerate
 - c) the solution must be optimal
 - d) one must use the northwest-corner method
- 13) _____ or _____ are used to "balance" an assignment or transportation problem.
- a) Destinations; sources
 - b) Units supplied; units demanded
 - c) Dummy rows; dummy columns
 - d) Large cost coefficients; small cost coefficients
- 14) The method of finding an initial solution based upon opportunity costs is called _____.
- a) the northwest corner rule
 - b) Vogel's approximation
 - c) Johansson's theorem
 - d) Flood's technique

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.
 3) Draw neat-labelled diagrams wherever necessary.

Section – I

- Q.2 a)** Evening shift resident doctors in a Govt. hospital work five consecutive days and then have two days off. Their five days of work can start on any day of the week and the schedule rotates indefinitely. The hospital requires the following minimum number of doctors working: **07**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
35	55	60	50	60	50	45

No more than 40 doctors can start their five working day's schedule on the same day. Formula the L.P. model to minimize the number of doctors to be employed by the hospital.

- b)** Solve by Graphical Method **07**
 Maximize $Z = 3x_1 + 4x_2$
 subject to $5x_1 + 4x_2 \leq 200$,
 $3x_1 + 5x_2 \leq 150$,
 $5x_1 + 4x_2 \geq 100$,
 $8x_1 + 4x_2 \geq 80$,
 $x_1, x_2 \geq 0$

- Q.3 a)** The captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows. **07**

TABLE 4.110

Batsman	Batting Position				
	I	II	III	IV	V
P	40	40	35	25	50
Q	42	30	16	25	27
R	50	48	40	60	50
S	20	19	20	18	25
T	58	60	59	55	53

Find the assignment of batsmen to positions which would give the maximum number of runs.

- b) Consider the problem of assigning five operators to five machines. The assignment costs are given below. 07

TABLE 4.130

		Operators				
		I	II	III	IV	V
Machines	A	10	5	13	15	16
	B	3	9	18	3	6
	C	10	7	2	2	2
	D	5	11	9	7	12
	E	7	9	10	4	12

Assign the operators to difference machines so that total cost is minimized.

- Q.4 a) Solve by NWCR method 07

		To				
		W ₁	W ₂	W ₃	W ₄	Supply
Factory	F ₁	14	25	45	5	6
	F ₂	65	25	35	55	8
	F ₃	35	3	65	15	16
Requirement		4	7	6	13	30 (Total)

- b) Find an initial basic feasible solution to the following transportation problem using Vogel's approximation method. 07

TABLE 3.232

		Warehouse				
		W ₁	W ₂	W ₃	W ₄	Capacity
Factory	F ₁	19	30	50	10	7
	F ₂	70	30	40	60	9
	F ₃	40	8	70	20	18
Requirement		5	8	7	14	34 (Total)

Section – II

- Q.5 a) A machine operator has to perform two operations, turning and threading, on a number of different jobs. The time required to perform these operations (in minutes) for each job is known. Determine the order in which jobs should be processed in order to minimize the total time required to turn out all the jobs. 07

Job	Time for turning (minutes)	Time for threading (minutes)
1	3	8
2	12	10
3	5	9
4	2	6
5	9	3
6	11	1

Also find the total processing time and idle times for turning and threading operations.

- b)** The milk plant at a city distributes its products by trucks, loaded at the loading dock. It has its own fleet of trucks plus trucks of a private transport company. This transport company has complained that sometime its trucks have to wait in line and thus the company loses money paid for a truck and driver that is only waiting. The company has asked the milk plant management either to go in for a second loading dock or discount prices equivalent to the waiting time. The following data are available:
 Average arrival rate (all trucks) = 3 per hour,
 Average service rate = 4 per hour
 The transport company has provided 40% of the total number of trucks.
 Assuming the rates are random according to Poisson distribution, determine.
- i) The probability that a truck has to wait
 - ii) The waiting time of a truck that waits
 - iii) The expected waiting time of company trucks per day

Q.6 a) Find critical path **07**

Task:	A	B	C	D	E	F	G	H	I
Time:	8	10	8	10	16	17	18	14	9

- b)** The utility for a network are given below. Determine the total, free, independent and interfering floats and identify the critical path. **07**
- | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Activity: | 0-1 | 1-2 | 1-3 | 2-4 | 2-5 | 3-4 | 3-6 | 4-7 | 5-7 | 6-7 |
| Duration: | 2 | 8 | 10 | 6 | 3 | 3 | 7 | 5 | 2 | 8 |

- Q.7 Write short note on any three.** **14**
- a) Demand and supply
 - b) Types of costs
 - c) Interest Types
 - d) Cash flow diagram
 - e) Introduction to inflations

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Draw neat-labelled diagrams wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) The Operations research technique which helps in minimizing total waiting and service costs is _____.
 - a) Queuing Theory
 - b) Decision Theory
 - c) Both a and b
 - d) None of the above
- 2) In graphical representation the bounded region is known as _____ region.
 - a) solution
 - b) basic solution
 - c) feasible solution
 - d) optimal
- 3) Graphical optimal value for Z can be obtained from _____.
 - a) Corner points of feasible region
 - b) Corner points of the solution region
 - c) Both a and b
 - d) none of the above
- 4) In assignment problem of maximization, the objective is to maximize _____.
 - a) Profit
 - b) Optimization
 - c) Cost
 - d) None of the above
- 5) With the transportation technique, the initial solution can be generated in any fashion one chooses. The only restriction is that _____.
 - a) the edge constraints for supply and demand are satisfied
 - b) the solution is not degenerate
 - c) the solution must be optimal
 - d) one must use the northwest-corner method
- 6) _____ or _____ are used to "balance" an assignment or transportation problem.
 - a) Destinations; sources
 - b) Units supplied; units demanded
 - c) Dummy rows; dummy columns
 - d) Large cost coefficients; small cost coefficients

- 7) The method of finding an initial solution based upon opportunity costs is called _____.
a) the northwest corner rule b) Vogel's approximation
c) Johansson's theorem d) Flood's technique
- 8) Operations research is the application of _____ methods to arrive at the optimal solutions to the problem.
a) economical b) scientific
c) a and b both d) artistic
- 9) In operations research, the _____ are prepared for situations.
a) mathematical models b) physical models diagrammatic
c) diagrammatic models d) None of above
- 10) Operations management can be defined as the application of _____ to a problem within a system to yield the optimal solution.
a) Suitable manpower
b) mathematical techniques, models, and tools
c) Financial operations
d) None of above
- 11) OR can evaluate only the effects of _____.
a) Personnel factors
b) Financial factors
c) Numeric and quantifiable factors
d) None of above
- 12) The objective function and constraints are functions of two types of variables, _____ variables and _____ variables.
a) Positive and negative
b) Controllable and uncontrollable
c) Strong and weak
d) None of the above
- 13) OR has a characteristic that it is done by a team of _____.
a) Scientists b) Mathematicians
c) Academics d) All the above
- 14) Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints?
a) Quailing Theory b) Waiting Line
c) Both a and b d) Linear Programming

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.
 3) Draw neat-labelled diagrams wherever necessary.

Section – I

- Q.2 a)** Evening shift resident doctors in a Govt. hospital work five consecutive days and then have two days off. Their five days of work can start on any day of the week and the schedule rotates indefinitely. The hospital requires the following minimum number of doctors working: **07**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
35	55	60	50	60	50	45

No more than 40 doctors can start their five working day's schedule on the same day. Formulate the L.P. model to minimize the number of doctors to be employed by the hospital.

- b)** Solve by Graphical Method **07**
 Maximize $Z = 3x_1 + 4x_2$
 subject to $5x_1 + 4x_2 \leq 200$,
 $3x_1 + 5x_2 \leq 150$,
 $5x_1 + 4x_2 \geq 100$,
 $8x_1 + 4x_2 \geq 80$,
 $x_1, x_2 \geq 0$

- Q.3 a)** The captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows. **07**

TABLE 4.110

Batsman	Batting Position				
	I	II	III	IV	V
P	40	40	35	25	50
Q	42	30	16	25	27
R	50	48	40	60	50
S	20	19	20	18	25
T	58	60	59	55	53

Find the assignment of batsmen to positions which would give the maximum number of runs.

- b) Consider the problem of assigning five operators to five machines. The assignment costs are given below. 07

TABLE 4.130

		Operators				
		I	II	III	IV	V
Machines	A	10	5	13	15	16
	B	3	9	18	3	6
	C	10	7	2	2	2
	D	5	11	9	7	12
	E	7	9	10	4	12

Assign the operators to difference machines so that total cost is minimized.

- Q.4 a) Solve by NWCR method 07

		To				Supply
		W ₁	W ₂	W ₃	W ₄	
Factory	F ₁	14	25	45	5	6
	F ₂	65	25	35	55	8
	F ₃	35	3	65	15	16
Requirement		4	7	6	13	30 (Total)

- b) Find an initial basic feasible solution to the following transportation problem using Vogel's approximation method. 07

TABLE 3.232

		Warehouse				Capacity
		W ₁	W ₂	W ₃	W ₄	
Factory	F ₁	19	30	50	10	7
	F ₂	70	30	40	60	9
	F ₃	40	8	70	20	18
Requirement		5	8	7	14	34 (Total)

Section – II

- Q.5 a) A machine operator has to perform two operations, turning and threading, on a number of different jobs. The time required to perform these operations (in minutes) for each job is known. Determine the order in which jobs should be processed in order to minimize the total time required to turn out all the jobs. 07

Job	Time for turning (minutes)	Time for threading (minutes)
1	3	8
2	12	10
3	5	9
4	2	6
5	9	3
6	11	1

Also find the total processing time and idle times for turning and threading operations.

- b)** The milk plant at a city distributes its products by trucks, loaded at the loading dock. It has its own fleet of trucks plus trucks of a private transport company. This transport company has complained that sometime its trucks have to wait in line and thus the company loses money paid for a truck and driver that is only waiting. The company has asked the milk plant management either to go in for a second loading dock or discount prices equivalent to the waiting time. The following data are available:
 Average arrival rate (all trucks) = 3 per hour,
 Average service rate = 4 per hour
 The transport company has provided 40% of the total number of trucks.
 Assuming the rates are random according to Poisson distribution, determine.
- The probability that a truck has to wait
 - The waiting time of a truck that waits
 - The expected waiting time of company trucks per day

- Q.6 a)** Find critical path **07**

Task:	A	B	C	D	E	F	G	H	I
Time:	8	10	8	10	16	17	18	14	9

- b)** The utility for a network are given below. Determine the total, free, independent and interfering floats and identify the critical path. **07**

Activity:	0-1	1-2	1-3	2-4	2-5	3-4	3-6	4-7	5-7	6-7
Duration:	2	8	10	6	3	3	7	5	2	8

- Q.7 Write short note on any three.** **14**

- Demand and supply
- Types of costs
- Interest Types
- Cash flow diagram
- Introduction to inflations

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw neat-labelled diagrams wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) In assignment problem of maximization, the objective is to maximize _____.
 - a) Profit
 - b) Optimization
 - c) Cost
 - d) None of the above
- 2) With the transportation technique, the initial solution can be generated in any fashion one chooses. The only restriction is that _____.
 - a) the edge constraints for supply and demand are satisfied
 - b) the solution is not degenerate
 - c) the solution must be optimal
 - d) one must use the northwest-corner method
- 3) _____ or _____ are used to "balance" an assignment or transportation problem.
 - a) Destinations; sources
 - b) Units supplied; units demanded
 - c) Dummy rows; dummy columns
 - d) Large cost coefficients; small cost coefficients
- 4) The method of finding an initial solution based upon opportunity costs is called _____.
 - a) the northwest corner rule
 - b) Vogel's approximation
 - c) Johansson's theorem
 - d) Flood's technique
- 5) Operations research is the application of _____ methods to arrive at the optimal solutions to the problem.
 - a) economical
 - b) scientific
 - c) a and b both
 - d) artistic
- 6) In operations research, the _____ are prepared for situations.
 - a) mathematical models
 - b) physical models diagrammatic
 - c) diagrammatic models
 - d) None of above

- 7) Operations management can be defined as the application of _____ to a problem within a system to yield the optimal solution.
- Suitable manpower
 - mathematical techniques, models, and tools
 - Financial operations
 - None of above
- 8) OR can evaluate only the effects of _____.
- Personnel factors
 - Financial factors
 - Numeric and quantifiable factors
 - None of above
- 9) The objective function and constraints are functions of two types of variables, _____ variables and _____ variables.
- Positive and negative
 - Controllable and uncontrollable
 - Strong and weak
 - None of the above
- 10) OR has a characteristic that it is done by a team of _____.
- Scientists
 - Mathematicians
 - Academics
 - All the above
- 11) Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints?
- Quailing Theory
 - Waiting Line
 - Both a and b
 - Linear Programming
- 12) The Operations research technique which helps in minimizing total waiting and service costs is _____.
- Queuing Theory
 - Decision Theory
 - Both a and b
 - None of the above
- 13) In graphical representation the bounded region is known as _____ region.
- solution
 - basic solution
 - feasible solution
 - optimal
- 14) Graphical optimal value for Z can be obtained from _____.
- Corner points of feasible region
 - Corner points of the solution region
 - Both a and b
 - none of the above

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.
 3) Draw neat-labelled diagrams wherever necessary.

Section – I

- Q.2 a)** Evening shift resident doctors in a Govt. hospital work five consecutive days and then have two days off. Their five days of work can start on any day of the week and the schedule rotates indefinitely. The hospital requires the following minimum number of doctors working: **07**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
35	55	60	50	60	50	45

No more than 40 doctors can start their five working day's schedule on the same day. Formula the L.P. model to minimize the number of doctors to be employed by the hospital.

- b)** Solve by Graphical Method **07**
 Maximize $Z = 3x_1 + 4x_2$
 subject to $5x_1 + 4x_2 \leq 200$,
 $3x_1 + 5x_2 \leq 150$,
 $5x_1 + 4x_2 \geq 100$,
 $8x_1 + 4x_2 \geq 80$,
 $x_1, x_2 \geq 0$

- Q.3 a)** The captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows. **07**

TABLE 4.110

Batsman	Batting Position				
	I	II	III	IV	V
P	40	40	35	25	50
Q	42	30	16	25	27
R	50	48	40	60	50
S	20	19	20	18	25
T	58	60	59	55	53

Find the assignment of batsmen to positions which would give the maximum number of runs.

- b) Consider the problem of assigning five operators to five machines. The assignment costs are given below. 07

TABLE 4.130

		Operators				
		I	II	III	IV	V
Machines	A	10	5	13	15	16
	B	3	9	18	3	6
	C	10	7	2	2	2
	D	5	11	9	7	12
	E	7	9	10	4	12

Assign the operators to difference machines so that total cost is minimized.

- Q.4 a) Solve by NWCR method 07

		To				Supply
		W ₁	W ₂	W ₃	W ₄	
Factory	F ₁	14	25	45	5	6
	F ₂	65	25	35	55	8
	F ₃	35	3	65	15	16
Requirement		4	7	6	13	30 (Total)

- b) Find an initial basic feasible solution to the following transportation problem using Vogel's approximation method. 07

TABLE 3.232

		Warehouse				Capacity
		W ₁	W ₂	W ₃	W ₄	
Factory	F ₁	19	30	50	10	7
	F ₂	70	30	40	60	9
	F ₃	40	8	70	20	18
Requirement		5	8	7	14	34 (Total)

Section – II

- Q.5 a) A machine operator has to perform two operations, turning and threading, on a number of different jobs. The time required to perform these operations (in minutes) for each job is known. Determine the order in which jobs should be processed in order to minimize the total time required to turn out all the jobs. 07

Job	Time for turning (minutes)	Time for threading (minutes)
1	3	8
2	12	10
3	5	9
4	2	6
5	9	3
6	11	1

Also find the total processing time and idle times for turning and threading operations.

- b)** The milk plant at a city distributes its products by trucks, loaded at the loading dock. It has its own fleet of trucks plus trucks of a private transport company. This transport company has complained that sometime its trucks have to wait in line and thus the company loses money paid for a truck and driver that is only waiting. The company has asked the milk plant management either to go in for a second loading dock or discount prices equivalent to the waiting time. The following data are available:
 Average arrival rate (all trucks) = 3 per hour,
 Average service rate = 4 per hour
 The transport company has provided 40% of the total number of trucks.
 Assuming the rates are random according to Poisson distribution, determine.
- The probability that a truck has to wait
 - The waiting time of a truck that waits
 - The expected waiting time of company trucks per day
- Q.6 a)** Find critical path **07**
- | | | | | | | | | | |
|-------|---|----|---|----|----|----|----|----|---|
| Task: | A | B | C | D | E | F | G | H | I |
| Time: | 8 | 10 | 8 | 10 | 16 | 17 | 18 | 14 | 9 |
- b)** The utility for a network are given below. Determine the total, free, independent and interfering floats and identify the critical path. **07**
- | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Activity: | 0-1 | 1-2 | 1-3 | 2-4 | 2-5 | 3-4 | 3-6 | 4-7 | 5-7 | 6-7 |
| Duration: | 2 | 8 | 10 | 6 | 3 | 3 | 7 | 5 | 2 | 8 |
- Q.7 Write short note on any three.** **14**
- Demand and supply
 - Types of costs
 - Interest Types
 - Cash flow diagram
 - Introduction to inflations

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Draw neat-labelled diagrams wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) OR has a characteristic that it is done by a team of _____.
a) Scientists
b) Mathematicians
c) Academics
d) All the above
- 2) Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints?
a) Quailing Theory
b) Waiting Line
c) Both a and b
d) Linear Programming
- 3) The Operations research technique which helps in minimizing total waiting and service costs is _____.
a) Queuing Theory
b) Decision Theory
c) Both a and b
d) None of the above
- 4) In graphical representation the bounded region is known as _____ region.
a) solution
b) basic solution
c) feasible solution
d) optimal
- 5) Graphical optimal value for Z can be obtained from _____.
a) Corner points of feasible region
b) Corner points of the solution region
c) Both a and b
d) none of the above
- 6) In assignment problem of maximization, the objective is to maximize _____.
a) Profit
b) Optimization
c) Cost
d) None of the above
- 7) With the transportation technique, the initial solution can be generated in any fashion one chooses. The only restriction is that _____.
a) the edge constraints for supply and demand are satisfied
b) the solution is not degenerate
c) the solution must be optimal
d) one must use the northwest-corner method

- 8) _____ or _____ are used to "balance" an assignment or transportation problem.
- a) Destinations; sources
 - b) Units supplied; units demanded
 - c) Dummy rows; dummy columns
 - d) Large cost coefficients; small cost coefficients
- 9) The method of finding an initial solution based upon opportunity costs is called _____.
- a) the northwest corner rule
 - b) Vogel's approximation
 - c) Johansson's theorem
 - d) Flood's technique
- 10) Operations research is the application of _____ methods to arrive at the optimal solutions to the problem.
- a) economical
 - b) scientific
 - c) a and b both
 - d) artistic
- 11) In operations research, the _____ are prepared for situations.
- a) mathematical models
 - b) physical models diagrammatic
 - c) diagrammatic models
 - d) None of above
- 12) Operations management can be defined as the application of _____ to a problem within a system to yield the optimal solution.
- a) Suitable manpower
 - b) mathematical techniques, models, and tools
 - c) Financial operations
 - d) None of above
- 13) OR can evaluate only the effects of _____.
- a) Personnel factors
 - b) Financial factors
 - c) Numeric and quantifiable factors
 - d) None of above
- 14) The objective function and constraints are functions of two types of variables, _____ variables and _____ variables.
- a) Positive and negative
 - b) Controllable and uncontrollable
 - c) Strong and weak
 - d) None of the above

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Operations Research (BTN02712)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.
 3) Draw neat-labelled diagrams wherever necessary.

Section – I

- Q.2 a)** Evening shift resident doctors in a Govt. hospital work five consecutive days and then have two days off. Their five days of work can start on any day of the week and the schedule rotates indefinitely. The hospital requires the following minimum number of doctors working: **07**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
35	55	60	50	60	50	45

No more than 40 doctors can start their five working day's schedule on the same day. Formula the L.P. model to minimize the number of doctors to be employed by the hospital.

- b)** Solve by Graphical Method **07**
 Maximize $Z = 3x_1 + 4x_2$
 subject to $5x_1 + 4x_2 \leq 200$,
 $3x_1 + 5x_2 \leq 150$,
 $5x_1 + 4x_2 \geq 100$,
 $8x_1 + 4x_2 \geq 80$,
 $x_1, x_2 \geq 0$

- Q.3 a)** The captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows. **07**

TABLE 4.110

Batsman	Batting Position				
	I	II	III	IV	V
P	40	40	35	25	50
Q	42	30	16	25	27
R	50	48	40	60	50
S	20	19	20	18	25
T	58	60	59	55	53

Find the assignment of batsmen to positions which would give the maximum number of runs.

- b) Consider the problem of assigning five operators to five machines. The assignment costs are given below. 07

TABLE 4.130

		Operators				
		I	II	III	IV	V
Machines	A	10	5	13	15	16
	B	3	9	18	3	6
	C	10	7	2	2	2
	D	5	11	9	7	12
	E	7	9	10	4	12

Assign the operators to difference machines so that total cost is minimized.

- Q.4 a) Solve by NWCR method 07

		To				Supply
		W ₁	W ₂	W ₃	W ₄	
Factory	F ₁	14	25	45	5	6
	F ₂	65	25	35	55	8
	F ₃	35	3	65	15	16
Requirement		4	7	6	13	30 (Total)

- b) Find an initial basic feasible solution to the following transportation problem using Vogel's approximation method. 07

TABLE 3.232

		Warehouse				Capacity
		W ₁	W ₂	W ₃	W ₄	
Factory	F ₁	19	30	50	10	7
	F ₂	70	30	40	60	9
	F ₃	40	8	70	20	18
Requirement		5	8	7	14	34 (Total)

Section – II

- Q.5 a) A machine operator has to perform two operations, turning and threading, on a number of different jobs. The time required to perform these operations (in minutes) for each job is known. Determine the order in which jobs should be processed in order to minimize the total time required to turn out all the jobs. 07

Job	Time for turning (minutes)	Time for threading (minutes)
1	3	8
2	12	10
3	5	9
4	2	6
5	9	3
6	11	1

Also find the total processing time and idle times for turning and threading operations.

- b)** The milk plant at a city distributes its products by trucks, loaded at the loading dock. It has its own fleet of trucks plus trucks of a private transport company. This transport company has complained that sometime its trucks have to wait in line and thus the company loses money paid for a truck and driver that is only waiting. The company has asked the milk plant management either to go in for a second loading dock or discount prices equivalent to the waiting time. The following data are available:
 Average arrival rate (all trucks) = 3 per hour,
 Average service rate = 4 per hour
 The transport company has provided 40% of the total number of trucks.
 Assuming the rates are random according to Poisson distribution, determine.
- The probability that a truck has to wait
 - The waiting time of a truck that waits
 - The expected waiting time of company trucks per day
- Q.6 a)** Find critical path **07**
- | | | | | | | | | | |
|-------|---|----|---|----|----|----|----|----|---|
| Task: | A | B | C | D | E | F | G | H | I |
| Time: | 8 | 10 | 8 | 10 | 16 | 17 | 18 | 14 | 9 |
- b)** The utility for a network are given below. Determine the total, free, independent and interfering floats and identify the critical path. **07**
- | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Activity: | 0-1 | 1-2 | 1-3 | 2-4 | 2-5 | 3-4 | 3-6 | 4-7 | 5-7 | 6-7 |
| Duration: | 2 | 8 | 10 | 6 | 3 | 3 | 7 | 5 | 2 | 8 |
- Q.7 Write short note on any three.** **14**
- Demand and supply
 - Types of costs
 - Interest Types
 - Cash flow diagram
 - Introduction to inflations

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw neat-labelled diagrams wherever necessary.
- 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the main role of research in education?
 - a) To upsurge one's social status
 - b) To increase one's job prospects
 - c) To augment one's personal growth
 - d) To help an applicant in becoming a renowned educationalist
- 2) Which of the following features are considered as critical in qualitative research?
 - a) Collecting data with the help of standardized research tools
 - b) Design sampling with probability sample techniques
 - c) Collecting data with bottom-up empirical evidence
 - d) Gathering data with top-down schematic evidence
- 3) How is random sampling helpful?
 - a) Reasonably accurate
 - b) An economical method of data collection
 - c) Free from personal biases
 - d) All the above
- 4) To pursue the research, which of the following is priorly required?
 - a) Developing a research design
 - b) Formulating a research question
 - c) Deciding about the data analysis procedure
 - d) Formulating a research hypothesis
- 5) The format of thesis writing is the same as in _____.
 - a) Writing of Seminar representation
 - b) Preparation of research paper/article
 - c) A research dissertation
 - d) Presenting a workshop/conference paper

- 6) Research and Development become the index of development of the country. Which of the following reasons are true with regards to this statement?
- R&D targets human development
 - R&D can enhance people's standard of living in the country
 - R&D reflects the actual economic and social conditions being prevailed in the country
 - All the above
- 7) Which of the following does not correspond to characteristics of research?
- Research is not passive
 - Research is systematic
 - Research is not a problem-oriented
 - Research is not a process
- 8) Which of the following options are the main tasks of research in modern society?
- To learn new things
 - To keep pace with the advancement in knowledge
 - To systematically examine and critically analyse the investigations / sources with the objective
 - All the above
- 9) How to judge the depth of any research?
- By research title
 - By research duration
 - By research objectives
 - By total expenditure on research
- 10) Which of the following is not the method of Research?
- Survey
 - Historical
 - Observation
 - Philosophical
- 11) What are the core elements of a dissertation?
- Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
 - Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
 - Research Plan; Research Data; Analysis; References
 - Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions
- 12) What is the use of Factorial Analysis?
- For setting the hypotheses
 - To understand the difference between two variables
 - To understand the relationship between two variables
 - To understand the difference between various variables
- 13) The F-test:
- Is essentially a two-tailed test
 - Is essentially a one-tailed test
 - Can be one-tailed as well as two-tailed depending on the hypotheses
 - Can never be one tailed test
- 14) How can we enhance the research objective?
- By making it more valid
 - By making it more reliable
 - By making it more impartial
 - All the above

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- | | | | |
|------------|--------------------------------------|--------------------------------------------------------|-----------|
| Q.2 | a) | Explain Selection and formulation of Research Problem. | 05 |
| | b) | Explain Design Motivation and objectives | 04 |
| Q.3 | a) | Explain Critical literature review. | 05 |
| | b) | Explain Case Study method. | 05 |
| Q.4 | a) | Explain Sampling method and Questionnaire. | 05 |
| | b) | Explain Delphi method and Brainstorming Techniques. | 04 |
| Q.5 | Write short note on any three | | 09 |
| | a) | Importance and Objectives | |
| | b) | Types of Research | |
| | c) | Importance of literature review | |
| | d) | Primary and secondary sources in literature review | |
| | e) | Interview method and Focus Group discussion | |

Section – II

- | | | | |
|------------|--------------------------------------|------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain Developing a research plan. | 05 |
| | b) | Explain Laws and Theories in research design. | 05 |
| Q.7 | a) | Explain in detail diagrammatic & graphical presentation of data. | 05 |
| | b) | Define mean, median, mode, variance, and deviation. | 04 |
| Q.8 | a) | Explain regression analysis. | 05 |
| | b) | Explain Research proposal. | 04 |
| Q.9 | Write short note on any three | | 09 |
| | a) | Basic Principles & Need of research design | |
| | b) | Any two types of research designs | |
| | c) | Collection of data | |
| | d) | Types of report | |
| | e) | Structure and components of scientific reports | |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following options are the main tasks of research in modern society?
 - a) To learn new things
 - b) To keep pace with the advancement in knowledge
 - c) To systematically examine and critically analyse the investigations / sources with the objective
 - d) All the above
- 2) How to judge the depth of any research?
 - a) By research title
 - b) By research duration
 - c) By research objectives
 - d) By total expenditure on research
- 3) Which of the following is not the method of Research?
 - a) Survey
 - b) Historical
 - c) Observation
 - d) Philosophical
- 4) What are the core elements of a dissertation?
 - a) Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
 - b) Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
 - c) Research Plan; Research Data; Analysis; References
 - d) Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions
- 5) What is the use of Factorial Analysis?
 - a) For setting the hypotheses
 - b) To understand the difference between two variables
 - c) To understand the relationship between two variables
 - d) To understand the difference between various variables

- 6) The F-test:
- Is essentially a two-tailed test
 - Is essentially a one-tailed test
 - Can be one-tailed as well as two-tailed depending on the hypotheses
 - Can never be one tailed test
- 7) How can we enhance the research objective?
- By making it more valid
 - By making it more reliable
 - By making it more impartial
 - All the above
- 8) What is the main role of research in education?
- To upsurge one's social status
 - To increase one's job prospects
 - To augment one's personal growth
 - To help an applicant in becoming a renowned educationalist
- 9) Which of the following features are considered as critical in qualitative research?
- Collecting data with the help of standardized research tools
 - Design sampling with probability sample techniques
 - Collecting data with bottom-up empirical evidence
 - Gathering data with top-down schematic evidence
- 10) How is random sampling helpful?
- Reasonably accurate
 - An economical method of data collection
 - Free from personal biases
 - All the above
- 11) To pursue the research, which of the following is priorly required?
- Developing a research design
 - Formulating a research question
 - Deciding about the data analysis procedure
 - Formulating a research hypothesis
- 12) The format of thesis writing is the same as in ____.
- Writing of Seminar representation
 - Preparation of research paper/article
 - A research dissertation
 - Presenting a workshop/conference paper
- 13) Research and Development become the index of development of the country. Which of the following reasons are true with regards to this statement?
- R&D targets human development
 - R&D can enhance people's standard of living in the country
 - R&D reflects the actual economic and social conditions being prevailed in the country
 - All the above
- 14) Which of the following does not correspond to characteristics of research?
- Research is not passive
 - Research is systematic
 - Research is not a problem-oriented
 - Research is not a process

Seat No.	
----------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- | | | |
|------------|-----------------------------------------------------------|-----------|
| Q.2 | a) Explain Selection and formulation of Research Problem. | 05 |
| | b) Explain Design Motivation and objectives | 04 |
| Q.3 | a) Explain Critical literature review. | 05 |
| | b) Explain Case Study method. | 05 |
| Q.4 | a) Explain Sampling method and Questionnaire. | 05 |
| | b) Explain Delphi method and Brainstorming Techniques. | 04 |
| Q.5 | Write short note on any three | 09 |
| | a) Importance and Objectives | |
| | b) Types of Research | |
| | c) Importance of literature review | |
| | d) Primary and secondary sources in literature review | |
| | e) Interview method and Focus Group discussion | |

Section – II

- | | | |
|------------|---------------------------------------------------------------------|-----------|
| Q.6 | a) Explain Developing a research plan. | 05 |
| | b) Explain Laws and Theories in research design. | 05 |
| Q.7 | a) Explain in detail diagrammatic & graphical presentation of data. | 05 |
| | b) Define mean, median, mode, variance, and deviation. | 04 |
| Q.8 | a) Explain regression analysis. | 05 |
| | b) Explain Research proposal. | 04 |
| Q.9 | Write short note on any three | 09 |
| | a) Basic Principles & Need of research design | |
| | b) Any two types of research designs | |
| | c) Collection of data | |
| | d) Types of report | |
| | e) Structure and components of scientific reports | |

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw neat-labelled diagrams wherever necessary.
- 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) What are the core elements of a dissertation?
 - a) Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
 - b) Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
 - c) Research Plan; Research Data; Analysis; References
 - d) Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions

- 2) What is the use of Factorial Analysis?
 - a) For setting the hypotheses
 - b) To understand the difference between two variables
 - c) To understand the relationship between two variables
 - d) To understand the difference between various variables

- 3) The F-test:
 - a) Is essentially a two-tailed test
 - b) Is essentially a one-tailed test
 - c) Can be one-tailed as well as two-tailed depending on the hypotheses
 - d) Can never be one tailed test

- 4) How can we enhance the research objective?

a) By making it more valid	b) By making it more reliable
c) By making it more impartial	d) All the above

- 5) What is the main role of research in education?
 - a) To upsurge one's social status
 - b) To increase one's job prospects
 - c) To augment one's personal growth
 - d) To help an applicant in becoming a renowned educationalist

- 6) Which of the following features are considered as critical in qualitative research?
- Collecting data with the help of standardized research tools
 - Design sampling with probability sample techniques
 - Collecting data with bottom-up empirical evidence
 - Gathering data with top-down schematic evidence
- 7) How is random sampling helpful?
- Reasonably accurate
 - An economical method of data collection
 - Free from personal biases
 - All the above
- 8) To pursue the research, which of the following is priorly required?
- Developing a research design
 - Formulating a research question
 - Deciding about the data analysis procedure
 - Formulating a research hypothesis
- 9) The format of thesis writing is the same as in ____.
- Writing of Seminar representation
 - Preparation of research paper/article
 - A research dissertation
 - Presenting a workshop/conference paper
- 10) Research and Development become the index of development of the country. Which of the following reasons are true with regards to this statement?
- R&D targets human development
 - R&D can enhance people's standard of living in the country
 - R&D reflects the actual economic and social conditions being prevailed in the country
 - All the above
- 11) Which of the following does not correspond to characteristics of research?
- Research is not passive
 - Research is systematic
 - Research is not a problem-oriented
 - Research is not a process
- 12) Which of the following options are the main tasks of research in modern society?
- To learn new things
 - To keep pace with the advancement in knowledge
 - To systematically examine and critically analyse the investigations / sources with the objective
 - All the above
- 13) How to judge the depth of any research?
- | | |
|---------------------------|-------------------------------------|
| a) By research title | b) By research duration |
| c) By research objectives | d) By total expenditure on research |
- 14) Which of the following is not the method of Research?
- | | |
|----------------|------------------|
| a) Survey | b) Historical |
| c) Observation | d) Philosophical |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- | | | | |
|------------|--------------------------------------|--------------------------------------------------------|-----------|
| Q.2 | a) | Explain Selection and formulation of Research Problem. | 05 |
| | b) | Explain Design Motivation and objectives | 04 |
| Q.3 | a) | Explain Critical literature review. | 05 |
| | b) | Explain Case Study method. | 05 |
| Q.4 | a) | Explain Sampling method and Questionnaire. | 05 |
| | b) | Explain Delphi method and Brainstorming Techniques. | 04 |
| Q.5 | Write short note on any three | | 09 |
| | a) | Importance and Objectives | |
| | b) | Types of Research | |
| | c) | Importance of literature review | |
| | d) | Primary and secondary sources in literature review | |
| | e) | Interview method and Focus Group discussion | |

Section – II

- | | | | |
|------------|--------------------------------------|------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain Developing a research plan. | 05 |
| | b) | Explain Laws and Theories in research design. | 05 |
| Q.7 | a) | Explain in detail diagrammatic & graphical presentation of data. | 05 |
| | b) | Define mean, median, mode, variance, and deviation. | 04 |
| Q.8 | a) | Explain regression analysis. | 05 |
| | b) | Explain Research proposal. | 04 |
| Q.9 | Write short note on any three | | 09 |
| | a) | Basic Principles & Need of research design | |
| | b) | Any two types of research designs | |
| | c) | Collection of data | |
| | d) | Types of report | |
| | e) | Structure and components of scientific reports | |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
- 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
- 3) Figures to the right indicates full marks.
- 4) Draw neat-labelled diagrams wherever necessary.
- 5) Use of log table and calculators is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Research and Development become the index of development of the country. Which of the following reasons are true with regards to this statement?
- a) R&D targets human development
 - b) R&D can enhance people's standard of living in the country
 - c) R&D reflects the actual economic and social conditions being prevailed in the country
 - d) All the above
- 2) Which of the following does not correspond to characteristics of research?
- a) Research is not passive
 - b) Research is systematic
 - c) Research is not a problem-oriented
 - d) Research is not a process
- 3) Which of the following options are the main tasks of research in modern society?
- a) To learn new things
 - b) To keep pace with the advancement in knowledge
 - c) To systematically examine and critically analyse the investigations / sources with the objective
 - d) All the above
- 4) How to judge the depth of any research?
- a) By research title
 - b) By research duration
 - c) By research objectives
 - d) By total expenditure on research
- 5) Which of the following is not the method of Research?
- a) Survey
 - b) Historical
 - c) Observation
 - d) Philosophical

- 6) What are the core elements of a dissertation?
- Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
 - Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
 - Research Plan; Research Data; Analysis; References
 - Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions
- 7) What is the use of Factorial Analysis?
- For setting the hypotheses
 - To understand the difference between two variables
 - To understand the relationship between two variables
 - To understand the difference between various variables
- 8) The F-test:
- Is essentially a two-tailed test
 - Is essentially a one-tailed test
 - Can be one-tailed as well as two-tailed depending on the hypotheses
 - Can never be one tailed test
- 9) How can we enhance the research objective?
- By making it more valid
 - By making it more reliable
 - By making it more impartial
 - All the above
- 10) What is the main role of research in education?
- To upsurge one's social status
 - To increase one's job prospects
 - To augment one's personal growth
 - To help an applicant in becoming a renowned educationalist
- 11) Which of the following features are considered as critical in qualitative research?
- Collecting data with the help of standardized research tools
 - Design sampling with probability sample techniques
 - Collecting data with bottom-up empirical evidence
 - Gathering data with top-down schematic evidence
- 12) How is random sampling helpful?
- Reasonably accurate
 - An economical method of data collection
 - Free from personal biases
 - All the above
- 13) To pursue the research, which of the following is priorly required?
- Developing a research design
 - Formulating a research question
 - Deciding about the data analysis procedure
 - Formulating a research hypothesis
- 14) The format of thesis writing is the same as in ____.
- Writing of Seminar representation
 - Preparation of research paper/article
 - A research dissertation
 - Presenting a workshop/conference paper

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Research Methodology (BTN02713)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 3 is compulsory in section I, and solve any two questions from the remaining. (Q. No. 2, 4 & 5)
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining. (Q. No. 7, 8 & 9)
 3) Figures to the right indicate full marks.
 4) Draw neat-labelled diagrams wherever necessary.
 5) Use of log table and calculators is allowed.

Section – I

- | | | | |
|------------|--------------------------------------|--------------------------------------------------------|-----------|
| Q.2 | a) | Explain Selection and formulation of Research Problem. | 05 |
| | b) | Explain Design Motivation and objectives | 04 |
| Q.3 | a) | Explain Critical literature review. | 05 |
| | b) | Explain Case Study method. | 05 |
| Q.4 | a) | Explain Sampling method and Questionnaire. | 05 |
| | b) | Explain Delphi method and Brainstorming Techniques. | 04 |
| Q.5 | Write short note on any three | | 09 |
| | a) | Importance and Objectives | |
| | b) | Types of Research | |
| | c) | Importance of literature review | |
| | d) | Primary and secondary sources in literature review | |
| | e) | Interview method and Focus Group discussion | |

Section – II

- | | | | |
|------------|--------------------------------------|------------------------------------------------------------------|-----------|
| Q.6 | a) | Explain Developing a research plan. | 05 |
| | b) | Explain Laws and Theories in research design. | 05 |
| Q.7 | a) | Explain in detail diagrammatic & graphical presentation of data. | 05 |
| | b) | Define mean, median, mode, variance, and deviation. | 04 |
| Q.8 | a) | Explain regression analysis. | 05 |
| | b) | Explain Research proposal. | 04 |
| Q.9 | Write short note on any three | | 09 |
| | a) | Basic Principles & Need of research design | |
| | b) | Any two types of research designs | |
| | c) | Collection of data | |
| | d) | Types of report | |
| | e) | Structure and components of scientific reports | |

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following is not a key driver of Supply Chain Management?
 - a) Cost Efficiency
 - b) Customer Satisfaction
 - c) Inventory Management
 - d) Centralized Decision Making
- 2) What is the primary focus of the Cycle View of Supply Chain Management?
 - a) Optimizing individual processes within the supply chain
 - b) Managing relationships with suppliers and customers
 - c) Understanding the flow of materials and information within the supply chain
 - d) Identifying and mitigating risks in the supply chain
- 3) What is the primary importance of coordination in a supply chain?
 - a) Reducing costs
 - b) Increasing inventory levels
 - c) Improving customer satisfaction
 - d) Decreasing production efficiency
- 4) The Bullwhip Effect in supply chain management refers to _____.
 - a) A sudden decrease in demand at the retail level
 - b) An increase in inventory levels throughout the supply chain
 - c) Small fluctuations in demand being magnified as they move upstream in the supply chain
 - d) Smooth and consistent flow of goods and services
- 5) What strategies can be employed to achieve coordination in a supply chain?
 - a) Centralized decision-making
 - b) Lack of information sharing
 - c) Independent actions by each member
 - d) Collaboration and information sharing among supply chain partners

- 6) What is a key consideration in developing a global supply chain strategy?
- a) Standardization of processes across all regions.
 - b) Ignoring cultural differences among global partners.
 - c) Flexibility to adapt to local market conditions.
 - d) Relying solely on domestic suppliers.
- 7) Forecasting models in inventory management are used for: _____.
- a) Estimating demand for products
 - b) Optimizing production schedules
 - c) Managing transportation routes
 - d) Tracking inventory turnover rates
- 8) Lead time in inventory management refers to: _____.
- a) The time it takes for a product to be manufactured
 - b) The time it takes for an order to be delivered after it's placed
 - c) The time it takes for a product to be sold after it's produced
 - d) The time it takes for a product to reach its expiration date
- 9) Which of the following is a symptom of poor inventory management?
- a) High turnover rate
 - b) Increased customer satisfaction
 - c) Excessive stock outs
 - d) Efficient order fulfillment
- 10) Which of the following is not a dimension of performance metrics in supply chain management?
- a) Cost
 - b) Speed
 - c) Customer satisfaction
 - d) Quantity
- 11) Measuring logistics cost and performance involves assessing which of the following aspects?
- a) Transportation costs
 - b) Inventory carrying costs
 - c) Warehousing costs
 - d) All of the above
- 12) Benchmarking the supply chain involves comparing performance metrics with: _____.
- a) Industry standards
 - b) Competitor's performance
 - c) Internal historical data
 - d) All of the above
- 13) What is a primary focus of recent trends in supply chain management?
- a) Cost reduction
 - b) Quality improvement
 - c) Both a and b
 - d) None of the above
- 14) Co-Maker ship refers to _____.
- a) Shared responsibility among supply chain partners
 - b) Sole responsibility of one partner in the supply chain
 - c) Ignoring responsibilities in the supply chain
 - d) None of the above

Seat No.	
----------	--

Set

P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram whenever necessary.

Section – I

- | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q.2 | <p>a) Define Supply Chain Management and explain its significance in modern business operations. 04</p> <p>b) Explain the key drivers of Supply Chain Management. 05</p> <p>c) Describe the problems in Supply Chain Management and suggest solutions to address them. 05</p> |
| Q.3 | <p>a) Explain the concept of the Bullwhip Effect in supply chain management and its causes. 04</p> <p>b) Describe the importance of coordination in a supply chain and its impact on overall performance. 05</p> <p>c) Explain strategies that supply chain managers can employ to achieve coordination. 05</p> |
| Q.4 | <p>a) Describe the challenges companies face in developing a global supply chain strategy. 04</p> <p>b) Explain How does a well-managed supply chain contribute to a company's competitive advantage? 05</p> <p>c) Describe the process of structuring supply chain capabilities to align with business objectives. 05</p> |

Section – II

- | | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q.5 | <p>a) Explain the symptoms of poor inventory management in a supply chain context. 04</p> <p>b) Describe the key components and objectives of Distribution Resource Planning (DRP) in supply chain management 05</p> <p>c) Explain Safety stock and Describe the process of determining safety stock levels for inventory management. 05</p> |
| Q.6 | <p>a) Explain the importance of benchmarking in supply chain management and outline the steps involved in conducting a benchmarking analysis. 04</p> <p>b) Describe the dimensions of performance metrics in supply chain management and provide examples for each. 05</p> <p>c) Explain the approaches and tools commonly used for performance measurement in supply chain management. 05</p> |

- Q.7**
- a)** Explain the concept of green supply chain management. **04**
 - b)** Describe the benefits and challenges of outsourcing supply chain operations. **05**
 - c)** Explain the role of E-Commerce in Supply Chain Management. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Lead time in inventory management refers to: _____.
 a) The time it takes for a product to be manufactured
 b) The time it takes for an order to be delivered after it's placed
 c) The time it takes for a product to be sold after it's produced
 d) The time it takes for a product to reach its expiration date
- 2) Which of the following is a symptom of poor inventory management?
 a) High turnover rate b) Increased customer satisfaction
 c) Excessive stock outs d) Efficient order fulfillment
- 3) Which of the following is not a dimension of performance metrics in supply chain management?
 a) Cost b) Speed
 c) Customer satisfaction d) Quantity
- 4) Measuring logistics cost and performance involves assessing which of the following aspects?
 a) Transportation costs b) Inventory carrying costs
 c) Warehousing costs d) All of the above
- 5) Benchmarking the supply chain involves comparing performance metrics with: _____.
 a) Industry standards b) Competitor's performance
 c) Internal historical data d) All of the above
- 6) What is a primary focus of recent trends in supply chain management?
 a) Cost reduction b) Quality improvement
 c) Both a and b d) None of the above
- 7) Co-Maker ship refers to _____.
 a) Shared responsibility among supply chain partners
 b) Sole responsibility of one partner in the supply chain
 c) Ignoring responsibilities in the supply chain
 d) None of the above

- 8) Which of the following is not a key driver of Supply Chain Management?
- a) Cost Efficiency
 - b) Customer Satisfaction
 - c) Inventory Management
 - d) Centralized Decision Making
- 9) What is the primary focus of the Cycle View of Supply Chain Management?
- a) Optimizing individual processes within the supply chain
 - b) Managing relationships with suppliers and customers
 - c) Understanding the flow of materials and information within the supply chain
 - d) Identifying and mitigating risks in the supply chain
- 10) What is the primary importance of coordination in a supply chain?
- a) Reducing costs
 - b) Increasing inventory levels
 - c) Improving customer satisfaction
 - d) Decreasing production efficiency
- 11) The Bullwhip Effect in supply chain management refers to _____.
- a) A sudden decrease in demand at the retail level
 - b) An increase in inventory levels throughout the supply chain
 - c) Small fluctuations in demand being magnified as they move upstream in the supply chain
 - d) Smooth and consistent flow of goods and services
- 12) What strategies can be employed to achieve coordination in a supply chain?
- a) Centralized decision-making
 - b) Lack of information sharing
 - c) Independent actions by each member
 - d) Collaboration and information sharing among supply chain partners
- 13) What is a key consideration in developing a global supply chain strategy?
- a) Standardization of processes across all regions.
 - b) Ignoring cultural differences among global partners.
 - c) Flexibility to adapt to local market conditions.
 - d) Relying solely on domestic suppliers.
- 14) Forecasting models in inventory management are used for: _____.
- a) Estimating demand for products
 - b) Optimizing production schedules
 - c) Managing transportation routes
 - d) Tracking inventory turnover rates

Seat No.	
----------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram whenever necessary.

Section – I

- Q.2** a) Define Supply Chain Management and explain its significance in modern business operations. **04**
 b) Explain the key drivers of Supply Chain Management. **05**
 c) Describe the problems in Supply Chain Management and suggest solutions to address them. **05**
- Q.3** a) Explain the concept of the Bullwhip Effect in supply chain management and its causes. **04**
 b) Describe the importance of coordination in a supply chain and its impact on overall performance. **05**
 c) Explain strategies that supply chain managers can employ to achieve coordination. **05**
- Q.4** a) Describe the challenges companies face in developing a global supply chain strategy. **04**
 b) Explain How does a well-managed supply chain contribute to a company's competitive advantage? **05**
 c) Describe the process of structuring supply chain capabilities to align with business objectives. **05**

Section – II

- Q.5** a) Explain the symptoms of poor inventory management in a supply chain context. **04**
 b) Describe the key components and objectives of Distribution Resource Planning (DRP) in supply chain management **05**
 c) Explain Safety stock and Describe the process of determining safety stock levels for inventory management. **05**
- Q.6** a) Explain the importance of benchmarking in supply chain management and outline the steps involved in conducting a benchmarking analysis. **04**
 b) Describe the dimensions of performance metrics in supply chain management and provide examples for each. **05**
 c) Explain the approaches and tools commonly used for performance measurement in supply chain management. **05**

- | | | | |
|------------|-----------|------------------------------------------------------------------------------|-----------|
| Q.7 | a) | Explain the concept of green supply chain management. | 04 |
| | b) | Describe the benefits and challenges of outsourcing supply chain operations. | 05 |
| | c) | Explain the role of E-Commerce in Supply Chain Management. | 05 |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Measuring logistics cost and performance involves assessing which of the following aspects?

a) Transportation costs	b) Inventory carrying costs
c) Warehousing costs	d) All of the above
- 2) Benchmarking the supply chain involves comparing performance metrics with: _____.

a) Industry standards	b) Competitor's performance
c) Internal historical data	d) All of the above
- 3) What is a primary focus of recent trends in supply chain management?

a) Cost reduction	b) Quality improvement
c) Both a and b	d) None of the above
- 4) Co-Maker ship refers to _____.

a) Shared responsibility among supply chain partners	b) Sole responsibility of one partner in the supply chain
c) Ignoring responsibilities in the supply chain	d) None of the above
- 5) Which of the following is not a key driver of Supply Chain Management?

a) Cost Efficiency	b) Customer Satisfaction
c) Inventory Management	d) Centralized Decision Making
- 6) What is the primary focus of the Cycle View of Supply Chain Management?

a) Optimizing individual processes within the supply chain	b) Managing relationships with suppliers and customers
c) Understanding the flow of materials and information within the supply chain	d) Identifying and mitigating risks in the supply chain

- 7) What is the primary importance of coordination in a supply chain?
- a) Reducing costs
 - b) Increasing inventory levels
 - c) Improving customer satisfaction
 - d) Decreasing production efficiency
- 8) The Bullwhip Effect in supply chain management refers to _____.
a) A sudden decrease in demand at the retail level
b) An increase in inventory levels throughout the supply chain
c) Small fluctuations in demand being magnified as they move upstream in the supply chain
d) Smooth and consistent flow of goods and services
- 9) What strategies can be employed to achieve coordination in a supply chain?
- a) Centralized decision-making
 - b) Lack of information sharing
 - c) Independent actions by each member
 - d) Collaboration and information sharing among supply chain partners
- 10) What is a key consideration in developing a global supply chain strategy?
- a) Standardization of processes across all regions.
 - b) Ignoring cultural differences among global partners.
 - c) Flexibility to adapt to local market conditions.
 - d) Relying solely on domestic suppliers.
- 11) Forecasting models in inventory management are used for: _____.
a) Estimating demand for products
b) Optimizing production schedules
c) Managing transportation routes
d) Tracking inventory turnover rates
- 12) Lead time in inventory management refers to: _____.
a) The time it takes for a product to be manufactured
b) The time it takes for an order to be delivered after it's placed
c) The time it takes for a product to be sold after it's produced
d) The time it takes for a product to reach its expiration date
- 13) Which of the following is a symptom of poor inventory management?
- a) High turnover rate
 - b) Increased customer satisfaction
 - c) Excessive stock outs
 - d) Efficient order fulfillment
- 14) Which of the following is not a dimension of performance metrics in supply chain management?
- a) Cost
 - b) Speed
 - c) Customer satisfaction
 - d) Quantity

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram whenever necessary.

Section – I

- Q.2** a) Define Supply Chain Management and explain its significance in modern business operations. **04**
 b) Explain the key drivers of Supply Chain Management. **05**
 c) Describe the problems in Supply Chain Management and suggest solutions to address them. **05**
- Q.3** a) Explain the concept of the Bullwhip Effect in supply chain management and its causes. **04**
 b) Describe the importance of coordination in a supply chain and its impact on overall performance. **05**
 c) Explain strategies that supply chain managers can employ to achieve coordination. **05**
- Q.4** a) Describe the challenges companies face in developing a global supply chain strategy. **04**
 b) Explain How does a well-managed supply chain contribute to a company's competitive advantage? **05**
 c) Describe the process of structuring supply chain capabilities to align with business objectives. **05**

Section – II

- Q.5** a) Explain the symptoms of poor inventory management in a supply chain context. **04**
 b) Describe the key components and objectives of Distribution Resource Planning (DRP) in supply chain management **05**
 c) Explain Safety stock and Describe the process of determining safety stock levels for inventory management. **05**
- Q.6** a) Explain the importance of benchmarking in supply chain management and outline the steps involved in conducting a benchmarking analysis. **04**
 b) Describe the dimensions of performance metrics in supply chain management and provide examples for each. **05**
 c) Explain the approaches and tools commonly used for performance measurement in supply chain management. **05**

- Q.7**
- | | | |
|-----------|------------------------------------------------------------------------------|-----------|
| a) | Explain the concept of green supply chain management. | 04 |
| b) | Describe the benefits and challenges of outsourcing supply chain operations. | 05 |
| c) | Explain the role of E-Commerce in Supply Chain Management. | 05 |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Make suitable assumptions wherever necessary and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) What is a key consideration in developing a global supply chain strategy?
 - a) Standardization of processes across all regions.
 - b) Ignoring cultural differences among global partners.
 - c) Flexibility to adapt to local market conditions.
 - d) Relying solely on domestic suppliers.
- 2) Forecasting models in inventory management are used for: _____.
 - a) Estimating demand for products
 - b) Optimizing production schedules
 - c) Managing transportation routes
 - d) Tracking inventory turnover rates
- 3) Lead time in inventory management refers to: _____.
 - a) The time it takes for a product to be manufactured
 - b) The time it takes for an order to be delivered after it's placed
 - c) The time it takes for a product to be sold after it's produced
 - d) The time it takes for a product to reach its expiration date
- 4) Which of the following is a symptom of poor inventory management?

a) High turnover rate	b) Increased customer satisfaction
c) Excessive stock outs	d) Efficient order fulfillment
- 5) Which of the following is not a dimension of performance metrics in supply chain management?

a) Cost	b) Speed
c) Customer satisfaction	d) Quantity
- 6) Measuring logistics cost and performance involves assessing which of the following aspects?

a) Transportation costs	b) Inventory carrying costs
c) Warehousing costs	d) All of the above

- 7) Benchmarking the supply chain involves comparing performance metrics with: _____.
a) Industry standards b) Competitor's performance
c) Internal historical data d) All of the above
- 8) What is a primary focus of recent trends in supply chain management?
a) Cost reduction b) Quality improvement
c) Both a and b d) None of the above
- 9) Co-Maker ship refers to _____.
a) Shared responsibility among supply chain partners
b) Sole responsibility of one partner in the supply chain
c) Ignoring responsibilities in the supply chain
d) None of the above
- 10) Which of the following is not a key driver of Supply Chain Management?
a) Cost Efficiency b) Customer Satisfaction
c) Inventory Management d) Centralized Decision Making
- 11) What is the primary focus of the Cycle View of Supply Chain Management?
a) Optimizing individual processes within the supply chain
b) Managing relationships with suppliers and customers
c) Understanding the flow of materials and information within the supply chain
d) Identifying and mitigating risks in the supply chain
- 12) What is the primary importance of coordination in a supply chain?
a) Reducing costs
b) Increasing inventory levels
c) Improving customer satisfaction
d) Decreasing production efficiency
- 13) The Bullwhip Effect in supply chain management refers to _____.
a) A sudden decrease in demand at the retail level
b) An increase in inventory levels throughout the supply chain
c) Small fluctuations in demand being magnified as they move upstream in the supply chain
d) Smooth and consistent flow of goods and services
- 14) What strategies can be employed to achieve coordination in a supply chain?
a) Centralized decision-making
b) Lack of information sharing
c) Independent actions by each member
d) Collaboration and information sharing among supply chain partners

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Supply Chain Management (BTN02714)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
 2) Figures to right indicate full marks.
 3) Make suitable assumptions wherever necessary and state them clearly.
 4) Draw neat diagram whenever necessary.

Section – I

- Q.2** a) Define Supply Chain Management and explain its significance in modern business operations. **04**
 b) Explain the key drivers of Supply Chain Management. **05**
 c) Describe the problems in Supply Chain Management and suggest solutions to address them. **05**
- Q.3** a) Explain the concept of the Bullwhip Effect in supply chain management and its causes. **04**
 b) Describe the importance of coordination in a supply chain and its impact on overall performance. **05**
 c) Explain strategies that supply chain managers can employ to achieve coordination. **05**
- Q.4** a) Describe the challenges companies face in developing a global supply chain strategy. **04**
 b) Explain How does a well-managed supply chain contribute to a company's competitive advantage? **05**
 c) Describe the process of structuring supply chain capabilities to align with business objectives. **05**

Section – II

- Q.5** a) Explain the symptoms of poor inventory management in a supply chain context. **04**
 b) Describe the key components and objectives of Distribution Resource Planning (DRP) in supply chain management **05**
 c) Explain Safety stock and Describe the process of determining safety stock levels for inventory management. **05**
- Q.6** a) Explain the importance of benchmarking in supply chain management and outline the steps involved in conducting a benchmarking analysis. **04**
 b) Describe the dimensions of performance metrics in supply chain management and provide examples for each. **05**
 c) Explain the approaches and tools commonly used for performance measurement in supply chain management. **05**

- Q.7**
- a)** Explain the concept of green supply chain management. **04**
 - b)** Describe the benefits and challenges of outsourcing supply chain operations. **05**
 - c)** Explain the role of E-Commerce in Supply Chain Management. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Shape function is usually _____.
 - a) The coefficient that appears in the interpolation polynomial
 - b) Written for each individual node of finite element
 - c) Interchanged with the terminology interpolation polynomial
 - d) All of the above
- 2) If element size is reduced, number of elements _____.
 - a) increases
 - b) decreases
 - c) remains constant
 - d) gets deleted
- 3) The loading, constraints and other external effects applied to a model is _____.
 - a) Boundary conditions
 - b) Meshing
 - c) Constraining
 - d) Modeling
- 4) Preprocessing means _____.
 - a) Solving
 - b) Meshing
 - c) Result analysis
 - d) None of the above
- 5) Sum of all the natural coordinates of the node is _____.
 - a) One
 - b) Zero
 - c) Can not be predicted
 - d) none of the above
- 6) The interpolation function for a CST element is given by _____.
 - a) $U = a_1 + a_2x + a_3y$
 - b) $U = a_1 + a_2x + a_3x^2$
 - c) $U = a_1 + a_2x + a_3x^2 + a_4y$
 - d) $U = a_1 + a_2x + a_3y + a_4z$
- 7) Complex elements are defined as those elements which _____.
 - a) have higher order interpolation polynomials
 - b) have sides parallel to coordinate system
 - c) have sides parallel to coordinate system and use higher order interpolation polynomials
 - d) have polynomials with only linear and constant terms

Seat
No.

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

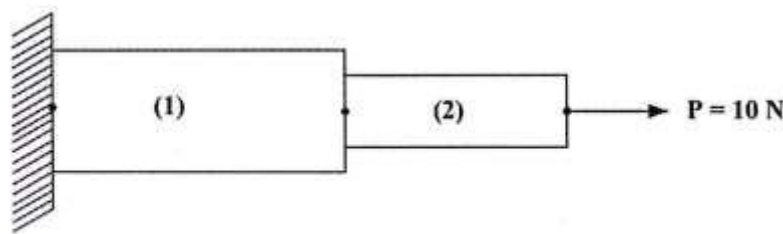


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

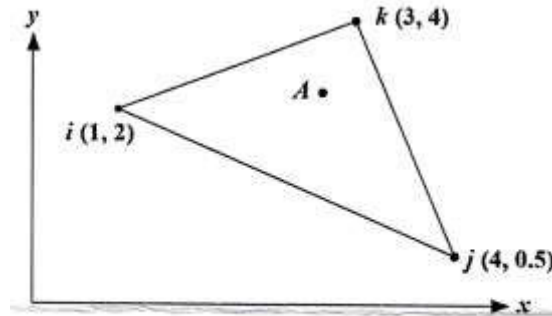


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

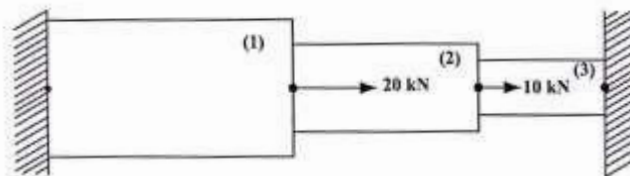


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

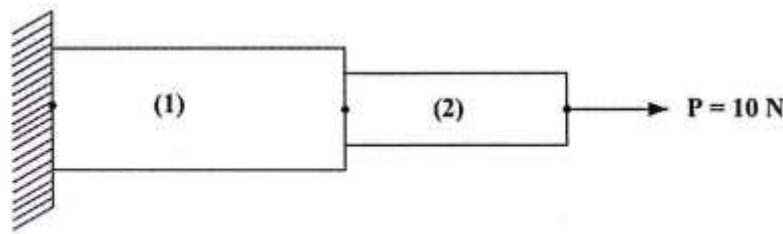


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

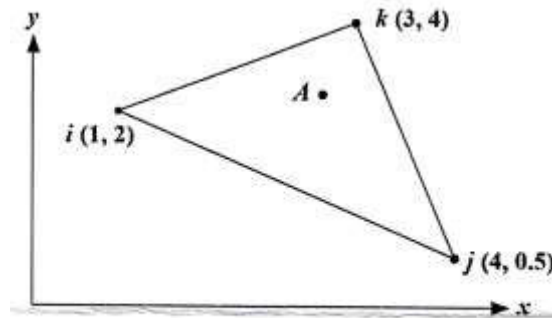


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

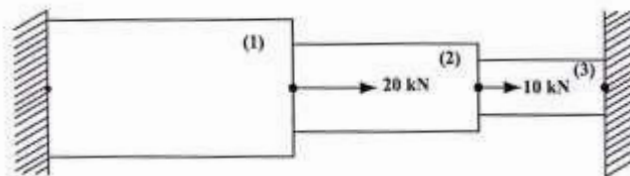


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Formula for Galerkin method is _____.
 - a) $\int f(x)R(x)dx = 0$
 - b) $\int R(x)dx = 0$
 - c) $R(x) = 0$
 - d) $\int R^2(x)dx = 0$
- 2) A measure of distortion of a element is _____.
 - a) Bandwidth
 - b) Damping ratio
 - c) Aspect ratio
 - d) Shape function
- 3) A problem which is not a function of a time _____.
 - a) Eigenvalue problem
 - b) Steady state problem
 - c) Transient problem
 - d) Propagation problem
- 4) The three most common cases on non-linearity are _____.
 - a) Fluttering, Geometric, Material
 - b) Material, Geometric, Contact
 - c) Material, Fluttering, plasticity
 - d) Creep, Fluttering, Contact
- 5) Shape function is usually _____.
 - a) The coefficient that appears in the interpolation polynomial
 - b) Written for each individual node of finite element
 - c) Interchanged with the terminology interpolation polynomial
 - d) All of the above
- 6) If element size is reduced, number of elements _____.
 - a) increases
 - b) decreases
 - c) remains constant
 - d) gets deleted
- 7) The loading, constraints and other external effects applied to a model is _____.
 - a) Boundary conditions
 - b) Meshing
 - c) Constraining
 - d) Modeling
- 8) Preprocessing means _____.
 - a) Solving
 - b) Meshing
 - c) Result analysis
 - d) None of the above

Seat
No.

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

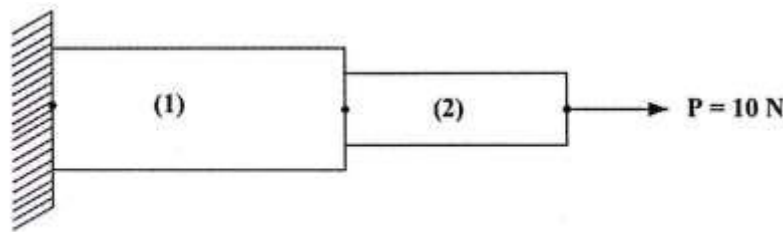


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

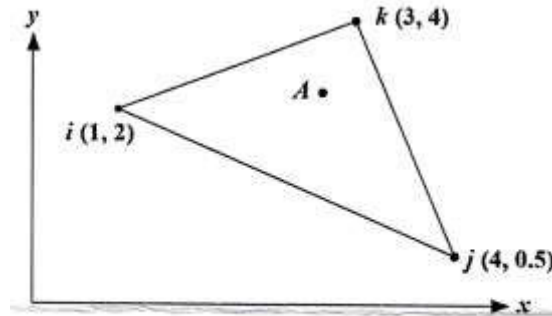


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

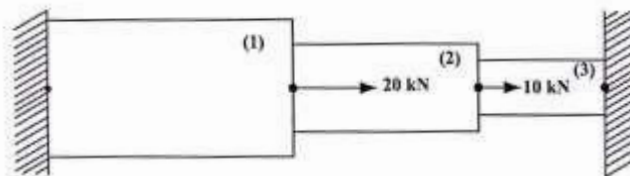


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) The interpolation function for a CST element is given by _____.
 a) $U = a_1 + a_2x + a_3y$ b) $U = a_1 + a_2x + a_3x^2$
 c) $U = a_1 + a_2x + a_3x^2 + a_4y$ d) $U = a_1 + a_2x + a_3y + a_4z$
- 2) Complex elements are defined as those elements which _____.
 a) have higher order interpolation polynomials
 b) have sides parallel to coordinate system
 c) have sides parallel to coordinate system and use higher order interpolation polynomials
 d) have polynomials with only linear and constant terms
- 3) Each node of beam element is having following degree of freedom _____.
 a) 3 b) 4
 c) 2 d) 1
- 4) In _____ element the value of field variable remains unchanged in the circumferential direction.
 a) 1D and 2D b) Beam
 c) Truss d) Axisymmetric
- 5) Size of shape function matrix of 2D element having 3 nodes is _____.
 a) 2×6 b) 3×3
 c) 4×6 d) 2×5
- 6) Formula for Galerkin method is _____.
 a) $\int f(x)R(x)dx = 0$ b) $\int R(x)dx = 0$
 c) $R(x) = 0$ d) $\int R^2(x)dx = 0$
- 7) A measure of distortion of a element is _____.
 a) Bandwidth b) Damping ratio
 c) Aspect ratio d) Shape function

- 8) A problem which is not a function of a time _____.
a) Eigenvalue problem b) Steady state problem
c) Transient problem d) Propagation problem
- 9) The three most common cases on non-linearity are _____.
a) Fluttering, Geometric, Material b) Material, Geometric, Contact
c) Material, Fluttering, plasticity d) Creep, Fluttering, Contact
- 10) Shape function is usually _____.
a) The coefficient that appears in the interpolation polynomial
b) Written for each individual node of finite element
c) Interchanged with the terminology interpolation polynomial
d) All of the above
- 11) If element size is reduced, number of elements _____.
a) increases b) decreases
c) remains constant d) gets deleted
- 12) The loading, constraints and other external effects applied to a model is _____.
a) Boundary conditions b) Meshing
c) Constraining d) Modeling
- 13) Preprocessing means _____.
a) Solving b) Meshing
c) Result analysis d) None of the above
- 14) Sum of all the natural coordinates of the node is _____.
a) One b) Zero
c) Can not be predicted d) none of the above

Seat
No.

Fourth Y. (B.Tech.)(Sem - I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (BTN02715)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

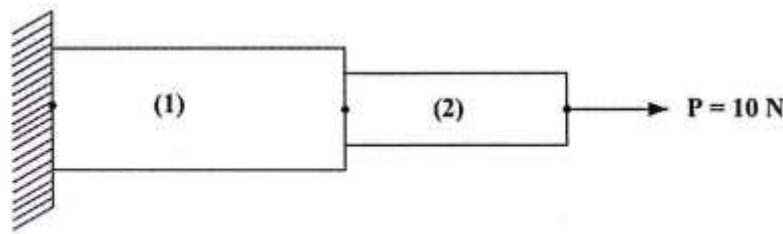


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

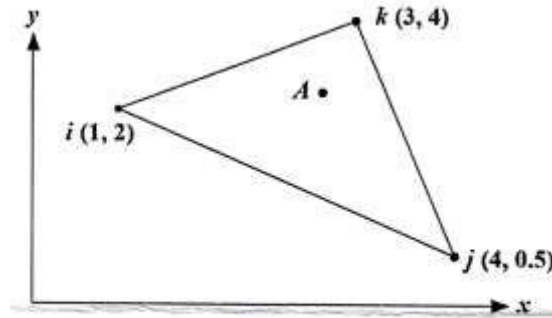


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

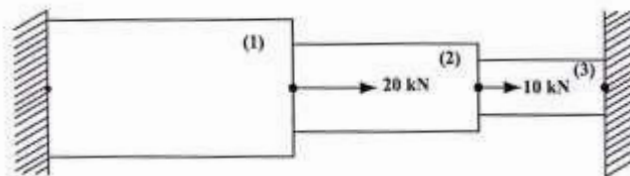


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Use of non-programmable calculator, steam tables, psychrometric chart is allowed.
 - 4) Figures to the right indicates full marks.
 - 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) In vapour compression cycle, the expansion valve is fitted between:
 - a) compressor and condenser
 - b) evaporator and compressor
 - c) condenser and evaporator
 - d) not used in the cycle
- 2) The highest temperature during the cycle in vapour compression refrigeration system occurs after _____.
 - a) Compression
 - b) Condensation
 - c) Expansion
 - d) evaporation
- 3) The subcooling is a process of cooling the refrigerant in vapour compression system _____.
 - a) before compression
 - b) after compression
 - c) before throttling
 - d) after throttling
- 4) The temperature limits of Carnot Refrigerator are 318 K and 263 K, then the Carnot COP is: _____.
 - a) 2.7
 - b) 3.7
 - c) 4.78
 - d) 5.78
- 5) When different temperatures are to be maintained at different points, _____ evaporator systems are used.
 - a) Single
 - b) Multiple
- 6) The fluids used in the Electrolux refrigerator are _____.
 - a) water and hydrogen
 - b) ammonia and hydrogen
 - c) ammonia, water and hydrogen
 - d) None of these
- 7) The refrigerant commonly used in vapour absorption system is _____.
 - a) Water
 - b) Ammonia
 - c) R-12
 - d) Sulphur dioxide

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve Any Two questions from each section.
2) Figures to right indicate full marks.
3) Use of non-programmable calculator, stream tables, psychrometric chart is allowed.
4) Assume suitable data wherever necessary.

Section – I

- Q.2 a)** A refrigeration machine using R12 as refrigerant operates between the pressures 2.5 bar and 9 bar. Compression is isentropic and there is no under-cooling in the condenser. The vapour is dry saturated at the beginning of compression. Calculate i) Theoretical COP of the plant, If the actual COP is 0.65 of theoretical value, Calculate the net cooling produced in Ton of refrigeration. The refrigerant flow rate is 5 Kg per minute. Use the following property table for R12. **08**

Pressure (bar)	Saturation Temperature (°C)	hf (kJ/kg)	hg (kJ/kg)	sg (kJ/kgK)
9.0	36	70.55	201.8	0.6836
2.5	-7	29.62	184.5	0.7001

Take Cp of superated vapour = 0.64 kJ/kgK.

- b)** Explain the effect of Suction vapour superheating and subcooling of refrigerant on performance of vapour compression cycle with help of p-h plot. **06**
- Q.3 a)** Describe a refrigeration system using two stage compression with intercooling and flash gas removal serving one low temperature evaporator. Draw the sketch and show cycle on p-h diagram. **05**
- b)** Explain the thermodynamic properties of refrigerants. **05**
- c)** Explain the effect of CFCs on ozone depletion. **04**
- Q.4 a)** Derive an expression for COP of ideal vapour absorption system. **05**
- b)** Explain Linde system for liquefaction of air. **05**
- c)** Write a note on applications of cryogenics. **04**

Section – II

- Q.5 a)** On a particular day the weather forecast states that the dry bulb temperature is 37°C while the relative humidity is 50% and the barometric pressure is 101.325 KPa. Find the humidity ratio, dew point temperature and enthalpy of moist air on this day. **08**
- b)** With the help of neat sketch describe the functioning of Air washer. Plot the processes which can be obtained with the help of air washer and explain them in brief. **06**

- Q.6**
- a) What are the sources of sensible heat and latent heat loads in an air-conditioned space. **05**
 - b) Derive the relation for equivalent diameter of rectangular duct for equal velocity of air flowing through both the ducts. **05**
 - c) What are the various factors affecting human comfort? **04**
- Q.7**
- a) For a hall to be air conditioned, following conditions are given: **08**
Outdoor condition: 40°C DBT, 20°C WBT
Required comfort condition: 20°C DBT, 60% RH
Seating Capacity of hall: 1500,
Amount of outdoor air supplied: 0.3 m³/min per person
If the required condition is achieved first by adiabatic humidification and then by cooling, Estimate
 - i) the capacity of cooling coil in tonnes
 - ii) the capacity of humidifier in Kg/hr
 - b) Explain with schematic diagram Linde system for liquefaction of air. **06**

- 8) In vapour compression cycle, the expansion valve is fitted between:
a) compressor and condenser b) evaporator and compressor
c) condenser and evaporator d) not used in the cycle
- 9) The highest temperature during the cycle in vapour compression refrigeration system occurs after _____.
a) Compression b) Condensation
c) Expansion d) evaporation
- 10) The subcooling is a process of cooling the refrigerant in vapour compression system _____.
a) before compression b) after compression
c) before throttling d) after throttling
- 11) The temperature limits of Carnot Refrigerator are 318 K and 263 K, then the Carnot COP is: _____.
a) 2.7 b) 3.7
c) 4.78 d) 5.78
- 12) When different temperatures are to be maintained at different points, _____ evaporator systems are used.
a) Single b) Multiple
- 13) The fluids used in the Electrolux refrigerator are _____.
a) water and hydrogen b) ammonia and hydrogen
c) ammonia, water and hydrogen d) None of these
- 14) The refrigerant commonly used in vapour absorption system is _____.
a) Water b) Ammonia
c) R-12 d) Sulphur dioxide

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve Any Two questions from each section.
 2) Figures to right indicate full marks.
 3) Use of non-programmable calculator, stream tables, psychrometric chart is allowed.
 4) Assume suitable data wherever necessary.

Section – I

- Q.2 a)** A refrigeration machine using R12 as refrigerant operates between the pressures 2.5 bar and 9 bar. Compression is isentropic and there is no under-cooling in the condenser. The vapour is dry saturated at the beginning of compression. Calculate i) Theoretical COP of the plant, If the actual COP is 0.65 of theoretical value, Calculate the net cooling produced in Ton of refrigeration. The refrigerant flow rate is 5 Kg per minute. Use the following property table for R12. **08**

Pressure (bar)	Saturation Temperature (°C)	hf (kJ/kg)	hg (kJ/kg)	sg (kJ/kgK)
9.0	36	70.55	201.8	0.6836
2.5	-7	29.62	184.5	0.7001

Take Cp of superated vapour = 0.64 kJ/kgK.

- b)** Explain the effect of Suction vapour superheating and subcooling of refrigerant on performance of vapour compression cycle with help of p-h plot. **06**
- Q.3 a)** Describe a refrigeration system using two stage compression with intercooling and flash gas removal serving one low temperature evaporator. Draw the sketch and show cycle on p-h diagram. **05**
- b)** Explain the thermodynamic properties of refrigerants. **05**
- c)** Explain the effect of CFCs on ozone depletion. **04**
- Q.4 a)** Derive an expression for COP of ideal vapour absorption system. **05**
- b)** Explain Linde system for liquefaction of air. **05**
- c)** Write a note on applications of cryogenics. **04**

Section – II

- Q.5 a)** On a particular day the weather forecast states that the dry bulb temperature is 37°C while the relative humidity is 50% and the barometric pressure is 101.325 KPa. Find the humidity ratio, dew point temperature and enthalpy of moist air on this day. **08**
- b)** With the help of neat sketch describe the functioning of Air washer. Plot the processes which can be obtained with the help of air washer and explain them in brief. **06**

- Q.6**
- a) What are the sources of sensible heat and latent heat loads in an air-conditioned space. **05**
 - b) Derive the relation for equivalent diameter of rectangular duct for equal velocity of air flowing through both the ducts. **05**
 - c) What are the various factors affecting human comfort? **04**
- Q.7**
- a) For a hall to be air conditioned, following conditions are given: **08**
Outdoor condition: 40°C DBT, 20°C WBT
Required comfort condition: 20°C DBT, 60% RH
Seating Capacity of hall: 1500,
Amount of outdoor air supplied: 0.3 m³/min per person
If the required condition is achieved first by adiabatic humidification and then by cooling, Estimate
 - i) the capacity of cooling coil in tonnes
 - ii) the capacity of humidifier in Kg/hr
 - b) Explain with schematic diagram Linde system for liquefaction of air. **06**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Use of non-programmable calculator, steam tables, psychrometric chart is allowed.
4) Figures to the right indicates full marks.
5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) The index which correlates the combined effects of air temperature, relative humidity and air velocity on the human body is known as humidity _____.
a) mean radiant temperature b) effective temperature
c) dew point temperature d) none of these
- 2) The conditioned air supplied to the room must have capacity to take up _____.
a) sensible heat load only
b) latent heat load only
c) both sensible and latent heat loads
d) none of these
- 3) When outside air is introduced for ventilation purposes, there is _____.
a) sensible heat gain
b) latent heat gain
c) both sensible as well as latent heat gain
d) none of these
- 4) A duct is said to be low velocity duct if the velocity of air in the duct is upto _____.
a) 600 m/min b) 800 m/min
c) 1200 m/min d) 1600 m/min
- 5) In vapour compression cycle, the expansion valve is fitted between:
a) compressor and condenser b) evaporator and compressor
c) condenser and evaporator d) not used in the cycle
- 6) The highest temperature during the cycle in vapour compression refrigeration system occurs after _____.
a) Compression b) Condensation
c) Expansion d) evaporation

- 7) The subcooling is a process of cooling the refrigerant in vapour compression system _____.
a) before compression b) after compression
c) before throttling d) after throttling
- 8) The temperature limits of Carnot Refrigerator are 318 K and 263 K, then the Carnot COP is: _____.
a) 2.7 b) 3.7
c) 4.78 d) 5.78
- 9) When different temperatures are to be maintained at different points, _____ evaporator systems are used.
a) Single b) Multiple
- 10) The fluids used in the Electrolux refrigerator are _____.
a) water and hydrogen b) ammonia and hydrogen
c) ammonia, water and hydrogen d) None of these
- 11) The refrigerant commonly used in vapour absorption system is _____.
a) Water b) Ammonia
c) R-12 d) Sulphur dioxide
- 12) Which of the following is an azeotrope refrigerant _____.
a) R-11 b) R-40
c) R-717 d) R-502
- 13) The difference between DBT and WBT is called as _____.
a) dry bulb depression b) wet bulb depression
c) dew point depression d) degree of saturation
- 14) During sensible cooling of air, the specific humidity _____.
a) increases b) decreases
c) remains constant d) none of these

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve Any Two questions from each section.
2) Figures to right indicate full marks.
3) Use of non-programmable calculator, steam tables, psychrometric chart is allowed.
4) Assume suitable data wherever necessary.

Section – I

- Q.2 a)** A refrigeration machine using R12 as refrigerant operates between the pressures 2.5 bar and 9 bar. Compression is isentropic and there is no under-cooling in the condenser. The vapour is dry saturated at the beginning of compression. Calculate i) Theoretical COP of the plant, If the actual COP is 0.65 of theoretical value, Calculate the net cooling produced in Ton of refrigeration. The refrigerant flow rate is 5 Kg per minute. Use the following property table for R12. **08**

Pressure (bar)	Saturation Temperature (°C)	hf (kJ/kg)	hg (kJ/kg)	sg (kJ/kgK)
9.0	36	70.55	201.8	0.6836
2.5	-7	29.62	184.5	0.7001

Take Cp of superated vapour = 0.64 kJ/kgK.

- b)** Explain the effect of Suction vapour superheating and subcooling of refrigerant on performance of vapour compression cycle with help of p-h plot. **06**
- Q.3 a)** Describe a refrigeration system using two stage compression with intercooling and flash gas removal serving one low temperature evaporator. Draw the sketch and show cycle on p-h diagram. **05**
- b)** Explain the thermodynamic properties of refrigerants. **05**
- c)** Explain the effect of CFCs on ozone depletion. **04**
- Q.4 a)** Derive an expression for COP of ideal vapour absorption system. **05**
- b)** Explain Linde system for liquefaction of air. **05**
- c)** Write a note on applications of cryogenics. **04**

Section – II

- Q.5 a)** On a particular day the weather forecast states that the dry bulb temperature is 37°C while the relative humidity is 50% and the barometric pressure is 101.325 KPa. Find the humidity ratio, dew point temperature and enthalpy of moist air on this day. **08**
- b)** With the help of neat sketch describe the functioning of Air washer. Plot the processes which can be obtained with the help of air washer and explain them in brief. **06**

- Q.6**
- a) What are the sources of sensible heat and latent heat loads in an air-conditioned space. **05**
 - b) Derive the relation for equivalent diameter of rectangular duct for equal velocity of air flowing through both the ducts. **05**
 - c) What are the various factors affecting human comfort? **04**
- Q.7**
- a) For a hall to be air conditioned, following conditions are given: **08**
Outdoor condition: 40°C DBT, 20°C WBT
Required comfort condition: 20°C DBT, 60% RH
Seating Capacity of hall: 1500,
Amount of outdoor air supplied: 0.3 m³/min per person
If the required condition is achieved first by adiabatic humidification and then by cooling, Estimate
 - i) the capacity of cooling coil in tonnes
 - ii) the capacity of humidifier in Kg/hr
 - b) Explain with schematic diagram Linde system for liquefaction of air. **06**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Use of non-programmable calculator, steam tables, psychrometric chart is allowed.
4) Figures to the right indicates full marks.
5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) The fluids used in the Electrolux refrigerator are _____.
a) water and hydrogen b) ammonia and hydrogen
c) ammonia, water and hydrogen d) None of these
- 2) The refrigerant commonly used in vapour absorption system is _____.
a) Water b) Ammonia
c) R-12 d) Sulphur dioxide
- 3) Which of the following is an azeotrope refrigerant _____.
a) R-11 b) R-40
c) R-717 d) R-502
- 4) The difference between DBT and WBT is called as _____.
a) dry bulb depression b) wet bulb depression
c) dew point depression d) degree of saturation
- 5) During sensible cooling of air, the specific humidity _____.
a) increases b) decreases
c) remains constant d) none of these
- 6) The index which correlates the combined effects of air temperature, relative humidity and air velocity on the human body is known as humidity _____.
a) mean radiant temperature b) effective temperature
c) dew point temperature d) none of these
- 7) The conditioned air supplied to the room must have capacity to take up _____.
a) sensible heat load only
b) latent heat load only
c) both sensible and latent heat loads
d) none of these

- 8) When outside air is introduced for ventilation purposes, there is _____.
a) sensible heat gain
b) latent heat gain
c) both sensible as well as latent heat gain
d) none of these
- 9) A duct is said to be low velocity duct if the velocity of air in the duct is upto _____.
a) 600 m/min
b) 800 m/min
c) 1200 m/min
d) 1600 m/min
- 10) In vapour compression cycle, the expansion valve is fitted between:
a) compressor and condenser
b) evaporator and compressor
c) condenser and evaporator
d) not used in the cycle
- 11) The highest temperature during the cycle in vapour compression refrigeration system occurs after _____.
a) Compression
b) Condensation
c) Expansion
d) evaporation
- 12) The subcooling is a process of cooling the refrigerant in vapour compression system _____.
a) before compression
b) after compression
c) before throttling
d) after throttling
- 13) The temperature limits of Carnot Refrigerator are 318 K and 263 K, then the Carnot COP is: _____.
a) 2.7
b) 3.7
c) 4.78
d) 5.78
- 14) When different temperatures are to be maintained at different points, _____ evaporator systems are used.
a) Single
b) Multiple

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Refrigeration and Air Conditioning (197041701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve Any Two questions from each section.
2) Figures to right indicate full marks.
3) Use of non-programmable calculator, steam tables, psychrometric chart is allowed.
4) Assume suitable data wherever necessary.

Section – I

- Q.2 a)** A refrigeration machine using R12 as refrigerant operates between the pressures 2.5 bar and 9 bar. Compression is isentropic and there is no under-cooling in the condenser. The vapour is dry saturated at the beginning of compression. Calculate i) Theoretical COP of the plant, If the actual COP is 0.65 of theoretical value, Calculate the net cooling produced in Ton of refrigeration. The refrigerant flow rate is 5 Kg per minute. Use the following property table for R12. **08**

Pressure (bar)	Saturation Temperature (°C)	hf (kJ/kg)	hg (kJ/kg)	sg (kJ/kgK)
9.0	36	70.55	201.8	0.6836
2.5	-7	29.62	184.5	0.7001

Take Cp of superated vapour = 0.64 kJ/kgK.

- b)** Explain the effect of Suction vapour superheating and subcooling of refrigerant on performance of vapour compression cycle with help of p-h plot. **06**
- Q.3 a)** Describe a refrigeration system using two stage compression with intercooling and flash gas removal serving one low temperature evaporator. Draw the sketch and show cycle on p-h diagram. **05**
- b)** Explain the thermodynamic properties of refrigerants. **05**
- c)** Explain the effect of CFCs on ozone depletion. **04**
- Q.4 a)** Derive an expression for COP of ideal vapour absorption system. **05**
- b)** Explain Linde system for liquefaction of air. **05**
- c)** Write a note on applications of cryogenics. **04**

Section – II

- Q.5 a)** On a particular day the weather forecast states that the dry bulb temperature is 37°C while the relative humidity is 50% and the barometric pressure is 101.325 KPa. Find the humidity ratio, dew point temperature and enthalpy of moist air on this day. **08**
- b)** With the help of neat sketch describe the functioning of Air washer. Plot the processes which can be obtained with the help of air washer and explain them in brief. **06**

- Q.6**
- a) What are the sources of sensible heat and latent heat loads in an air-conditioned space. **05**
 - b) Derive the relation for equivalent diameter of rectangular duct for equal velocity of air flowing through both the ducts. **05**
 - c) What are the various factors affecting human comfort? **04**
- Q.7**
- a) For a hall to be air conditioned, following conditions are given: **08**
Outdoor condition: 40°C DBT, 20°C WBT
Required comfort condition: 20°C DBT, 60% RH
Seating Capacity of hall: 1500,
Amount of outdoor air supplied: 0.3 m³/min per person
If the required condition is achieved first by adiabatic humidification and then by cooling, Estimate
 - i) the capacity of cooling coil in tonnes
 - ii) the capacity of humidifier in Kg/hr
 - b) Explain with schematic diagram Linde system for liquefaction of air. **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.
 - 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) What is the term for the angle between the vertical axis of the steering knuckle and a line drawn through the upper and lower ball joints of the suspension system?

a) Camber	b) Caster
c) King pin inclination	d) Toe-in
- 2) Which type of brake system uses friction to slow down or stop the vehicle by pressing brake shoes against the inside of a drum?

a) Disc brake	b) Hydraulic brake system
c) Air brake system	d) Internal expanding brake
- 3) Which type of drive system transmits power to the wheels through a set of gears, providing better traction and control on slippery surfaces?

a) Torque tube drive	b) Air suspension system
c) Hybrid drive	d) Solar drive
- 4) What is the purpose of an Electronic Control Unit (ECU) in modern automobiles?

a) To steer the vehicle	b) To control the lighting system
c) To regulate engine temperature	d) To manage various vehicle functions and optimize performance
- 5) How is the stopping distance of a vehicle affected when the dynamic weight transfer increases during braking?

a) Stopping distance decreases	b) Stopping distance remains the same
c) Stopping distance increases	d) It depends on the type of brake system
- 6) What is the primary factor contributing to rolling resistance in a vehicle?

a) Air pressure in the tires	b) Road surface conditions
c) Vehicle weight distribution	d) Engine power output

- 7) When calculating the grade ability of a vehicle, which of the following factors is most critical in determining its ability to climb steep slopes?
- a) Traction and tractive effort b) Tire pressure
c) Engine displacement d) Ambient temperature
- 8) Which type of automotive clutch is best suited for high-performance sports cars and racing applications, providing rapid gear changes without the need for a clutch pedal?
- a) Single plate clutch b) Multi-plate clutch
c) Centrifugal clutch d) Electromagnetic clutch
- 9) What is the formula to determine the gear ratio when selecting gears for a transmission system?
- a) Gear Ratio = Number of teeth on the input gear / Number of teeth on the output gear
b) Gear Ratio = Output speed / Input speed
c) Gear Ratio = Torque on the output shaft / Torque on the input shaft
d) Gear Ratio = Radius of the input gear / Radius of the output gear
- 10) In an air suspension system, what component is responsible for adjusting the vehicle's ride height and providing a smooth and comfortable ride?
- a) Electronic Control Unit (ECU) b) Air compressor
c) Fuel cell d) Solar panel
- 11) Which of the following is a common function of electronic control modules (ECMs) in modern vehicles?
- a) Monitoring fuel cell efficiency
b) Controlling solar panel deployment
c) Regulating engine performance and emissions
d) Managing hybrid vehicle charging
- 12) What is the primary factor used to classify automobiles into different categories based on their intended use and design?
- a) Color and aesthetics
b) Fuel efficiency
c) Passenger capacity and cargo space
d) Engine power output
- 13) When it comes to rear axle ratios, what does a higher numerical ratio typically result in?
- a) Improved fuel efficiency b) Greater acceleration
c) Enhanced steering control d) Increased tire longevity
- 14) In the context of automotive electrical components, which device is responsible for regulating the engine's operating temperature?
- a) Electric horn b) Electric fuel gauge
c) Thermostatic coil d) Electric Speedo meter

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain rear engine rear wheel drive with neat sketch and write its advantages and disadvantages. **06**
- b) Explain parameters considered to improve performance of automobile with necessary equations. **04**
- c) Explain electric horn with neat sketch. **04**
- Q.3** a) For the typical motor car, the road resistance is given by 23 N per 1000N the air resistance by the expression $0.0827v^2$. transmission efficiency is 88 % in top speed. Car weight is 19934N when fully loaded. Calculate: **10**
- 1) The bkw required for top speed of 144km/hr.
- 2) The acceleration in m/s^2 at 48 km/hr, assuming the torque at 48 km/hr in the top gear is 25% more than at 144 km/hr.
- 3) The bkw required to drive the car up a gradient of 1 in 5 at 48 km/hr transmission efficiency 80% in bottom gear. The resistance being in n and velocity speed in km/hr and g is acceleration due to gravity = $9/81 m/s^2$
- b) Explain selection of gear ratio and rear axle ratio. **04**
- Q.4** a) Why Propeller shaft is mounted in inclined position? Explain construction and working of differential gear box. **08**
- b) Explain Wiper & side indicator circuit Electric horn. **06**

Section – II

- Q.5** a) What are types of power steering? explain any one with neat sketch. **06**
- b) Explain importance of slip angle, condition of Under steer & over steer. **08**
- Q.6** a) Give calculation of breaking force, stopping distance and dynamic weight transfer. **08**
- b) Explain Disc break with neat sketch. **06**
- Q.7** a) Explain Hotch- kiss and Torque tube drive with neat sketch. **06**
- b) Enlist Sensors and actuators used in automobile controls. **04**
- c) Explain Reaction members in suspension system with neat sketch. **04**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.
 - 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) Which type of automotive clutch is best suited for high-performance sports cars and racing applications, providing rapid gear changes without the need for a clutch pedal?

a) Single plate clutch	b) Multi-plate clutch
c) Centrifugal clutch	d) Electromagnetic clutch
- 2) What is the formula to determine the gear ratio when selecting gears for a transmission system?

a) Gear Ratio = Number of teeth on the input gear / Number of teeth on the output gear
b) Gear Ratio = Output speed / Input speed
c) Gear Ratio = Torque on the output shaft / Torque on the input shaft
d) Gear Ratio = Radius of the input gear / Radius of the output gear
- 3) In an air suspension system, what component is responsible for adjusting the vehicle's ride height and providing a smooth and comfortable ride?

a) Electronic Control Unit (ECU)	b) Air compressor
c) Fuel cell	d) Solar panel
- 4) Which of the following is a common function of electronic control modules (ECMs) in modern vehicles?

a) Monitoring fuel cell efficiency
b) Controlling solar panel deployment
c) Regulating engine performance and emissions
d) Managing hybrid vehicle charging
- 5) What is the primary factor used to classify automobiles into different categories based on their intended use and design?

a) Color and aesthetics
b) Fuel efficiency
c) Passenger capacity and cargo space
d) Engine power output

- 6) When it comes to rear axle ratios, what does a higher numerical ratio typically result in?
- a) Improved fuel efficiency b) Greater acceleration
c) Enhanced steering control d) Increased tire longevity
- 7) In the context of automotive electrical components, which device is responsible for regulating the engine's operating temperature?
- a) Electric horn b) Electric fuel gauge
c) Thermostatic coil d) Electric Speedo meter
- 8) What is the term for the angle between the vertical axis of the steering knuckle and a line drawn through the upper and lower ball joints of the suspension system?
- a) Camber b) Caster
c) King pin inclination d) Toe-in
- 9) Which type of brake system uses friction to slow down or stop the vehicle by pressing brake shoes against the inside of a drum?
- a) Disc brake b) Hydraulic brake system
c) Air brake system d) Internal expanding brake
- 10) Which type of drive system transmits power to the wheels through a set of gears, providing better traction and control on slippery surfaces?
- a) Torque tube drive b) Air suspension system
c) Hybrid drive d) Solar drive
- 11) What is the purpose of an Electronic Control Unit (ECU) in modern automobiles?
- a) To steer the vehicle
b) To control the lighting system
c) To regulate engine temperature
d) To manage various vehicle functions and optimize performance
- 12) How is the stopping distance of a vehicle affected when the dynamic weight transfer increases during braking?
- a) Stopping distance decreases
b) Stopping distance remains the same
c) Stopping distance increases
d) It depends on the type of brake system
- 13) What is the primary factor contributing to rolling resistance in a vehicle?
- a) Air pressure in the tires b) Road surface conditions
c) Vehicle weight distribution d) Engine power output
- 14) When calculating the grade ability of a vehicle, which of the following factors is most critical in determining its ability to climb steep slopes?
- a) Traction and tractive effort b) Tire pressure
c) Engine displacement d) Ambient temperature

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain rear engine rear wheel drive with neat sketch and write its advantages and disadvantages. **06**
 b) Explain parameters considered to improve performance of automobile with necessary equations. **04**
 c) Explain electric horn with neat sketch. **04**
- Q.3** a) For the typical motor car, the road resistance is given by 23 N per 1000N the air resistance by the expression $0.0827v^2$. transmission efficiency is 88 % in top speed. Car weight is 19934N when fully loaded. Calculate: **10**
 1) The bkw required for top speed of 144km/hr.
 2) The acceleration in m/s^2 at 48 km/hr, assuming the torque at 48 km/hr in the top gear is 25% more than at 144 km/hr.
 3) The bkw required to drive the car up a gradient of 1 in 5 at 48 km/hr transmission efficiency 80% in bottom gear. The resistance being in n and velocity speed in km/hr and g is acceleration due to gravity = $9/81 m/s^2$
 b) Explain selection of gear ratio and rear axle ratio. **04**
- Q.4** a) Why Propeller shaft is mounted in inclined position? Explain construction and working of differential gear box. **08**
 b) Explain Wiper & side indicator circuit Electric horn. **06**

Section – II

- Q.5** a) What are types of power steering? explain any one with neat sketch. **06**
 b) Explain importance of slip angle, condition of Under steer & over steer. **08**
- Q.6** a) Give calculation of breaking force, stopping distance and dynamic weight transfer. **08**
 b) Explain Disc break with neat sketch. **06**
- Q.7** a) Explain Hotch- kiss and Torque tube drive with neat sketch. **06**
 b) Enlist Sensors and actuators used in automobile controls. **04**
 c) Explain Reaction members in suspension system with neat sketch. **04**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.
 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) Which of the following is a common function of electronic control modules (ECMs) in modern vehicles?
 - a) Monitoring fuel cell efficiency
 - b) Controlling solar panel deployment
 - c) Regulating engine performance and emissions
 - d) Managing hybrid vehicle charging

- 2) What is the primary factor used to classify automobiles into different categories based on their intended use and design?
 - a) Color and aesthetics
 - b) Fuel efficiency
 - c) Passenger capacity and cargo space
 - d) Engine power output

- 3) When it comes to rear axle ratios, what does a higher numerical ratio typically result in?

a) Improved fuel efficiency	b) Greater acceleration
c) Enhanced steering control	d) Increased tire longevity

- 4) In the context of automotive electrical components, which device is responsible for regulating the engine's operating temperature?

a) Electric horn	b) Electric fuel gauge
c) Thermostatic coil	d) Electric Speedo meter

- 5) What is the term for the angle between the vertical axis of the steering knuckle and a line drawn through the upper and lower ball joints of the suspension system?

a) Camber	b) Caster
c) King pin inclination	d) Toe-in

- 6) Which type of brake system uses friction to slow down or stop the vehicle by pressing brake shoes against the inside of a drum?

a) Disc brake	b) Hydraulic brake system
c) Air brake system	d) Internal expanding brake

- 7) Which type of drive system transmits power to the wheels through a set of gears, providing better traction and control on slippery surfaces?
- a) Torque tube drive
 - b) Air suspension system
 - c) Hybrid drive
 - d) Solar drive
- 8) What is the purpose of an Electronic Control Unit (ECU) in modern automobiles?
- a) To steer the vehicle
 - b) To control the lighting system
 - c) To regulate engine temperature
 - d) To manage various vehicle functions and optimize performance
- 9) How is the stopping distance of a vehicle affected when the dynamic weight transfer increases during braking?
- a) Stopping distance decreases
 - b) Stopping distance remains the same
 - c) Stopping distance increases
 - d) It depends on the type of brake system
- 10) What is the primary factor contributing to rolling resistance in a vehicle?
- a) Air pressure in the tires
 - b) Road surface conditions
 - c) Vehicle weight distribution
 - d) Engine power output
- 11) When calculating the grade ability of a vehicle, which of the following factors is most critical in determining its ability to climb steep slopes?
- a) Traction and tractive effort
 - b) Tire pressure
 - c) Engine displacement
 - d) Ambient temperature
- 12) Which type of automotive clutch is best suited for high-performance sports cars and racing applications, providing rapid gear changes without the need for a clutch pedal?
- a) Single plate clutch
 - b) Multi-plate clutch
 - c) Centrifugal clutch
 - d) Electromagnetic clutch
- 13) What is the formula to determine the gear ratio when selecting gears for a transmission system?
- a) Gear Ratio = Number of teeth on the input gear / Number of teeth on the output gear
 - b) Gear Ratio = Output speed / Input speed
 - c) Gear Ratio = Torque on the output shaft / Torque on the input shaft
 - d) Gear Ratio = Radius of the input gear / Radius of the output gear
- 14) In an air suspension system, what component is responsible for adjusting the vehicle's ride height and providing a smooth and comfortable ride?
- a) Electronic Control Unit (ECU)
 - b) Air compressor
 - c) Fuel cell
 - d) Solar panel

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain rear engine rear wheel drive with neat sketch and write its advantages and disadvantages. **06**
 b) Explain parameters considered to improve performance of automobile with necessary equations. **04**
 c) Explain electric horn with neat sketch. **04**
- Q.3** a) For the typical motor car, the road resistance is given by 23 N per 1000N the air resistance by the expression $0.0827v^2$. transmission efficiency is 88 % in top speed. Car weight is 19934N when fully loaded. Calculate: **10**
 1) The bkw required for top speed of 144km/hr.
 2) The acceleration in m/s^2 at 48 km/hr, assuming the torque at 48 km/hr in the top gear is 25% more than at 144 km/hr.
 3) The bkw required to drive the car up a gradient of 1 in 5 at 48 km/hr transmission efficiency 80% in bottom gear. The resistance being in n and velocity speed in km/hr and g is acceleration due to gravity = $9/81 m/s^2$
 b) Explain selection of gear ratio and rear axle ratio. **04**
- Q.4** a) Why Propeller shaft is mounted in inclined position? Explain construction and working of differential gear box. **08**
 b) Explain Wiper & side indicator circuit Electric horn. **06**

Section – II

- Q.5** a) What are types of power steering? explain any one with neat sketch. **06**
 b) Explain importance of slip angle, condition of Under steer & over steer. **08**
- Q.6** a) Give calculation of breaking force, stopping distance and dynamic weight transfer. **08**
 b) Explain Disc break with neat sketch. **06**
- Q.7** a) Explain Hotch- kiss and Torque tube drive with neat sketch. **06**
 b) Enlist Sensors and actuators used in automobile controls. **04**
 c) Explain Reaction members in suspension system with neat sketch. **04**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.
 - 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multiple choice questions.

14

- 1) What is the primary factor contributing to rolling resistance in a vehicle?
 - a) Air pressure in the tires
 - b) Road surface conditions
 - c) Vehicle weight distribution
 - d) Engine power output
- 2) When calculating the grade ability of a vehicle, which of the following factors is most critical in determining its ability to climb steep slopes?
 - a) Traction and tractive effort
 - b) Tire pressure
 - c) Engine displacement
 - d) Ambient temperature
- 3) Which type of automotive clutch is best suited for high-performance sports cars and racing applications, providing rapid gear changes without the need for a clutch pedal?
 - a) Single plate clutch
 - b) Multi-plate clutch
 - c) Centrifugal clutch
 - d) Electromagnetic clutch
- 4) What is the formula to determine the gear ratio when selecting gears for a transmission system?
 - a) Gear Ratio = Number of teeth on the input gear / Number of teeth on the output gear
 - b) Gear Ratio = Output speed / Input speed
 - c) Gear Ratio = Torque on the output shaft / Torque on the input shaft
 - d) Gear Ratio = Radius of the input gear / Radius of the output gear
- 5) In an air suspension system, what component is responsible for adjusting the vehicle's ride height and providing a smooth and comfortable ride?
 - a) Electronic Control Unit (ECU)
 - b) Air compressor
 - c) Fuel cell
 - d) Solar panel
- 6) Which of the following is a common function of electronic control modules (ECMs) in modern vehicles?
 - a) Monitoring fuel cell efficiency
 - b) Controlling solar panel deployment
 - c) Regulating engine performance and emissions
 - d) Managing hybrid vehicle charging

- 7) What is the primary factor used to classify automobiles into different categories based on their intended use and design?
- a) Color and aesthetics
 - b) Fuel efficiency
 - c) Passenger capacity and cargo space
 - d) Engine power output
- 8) When it comes to rear axle ratios, what does a higher numerical ratio typically result in?
- a) Improved fuel efficiency
 - b) Greater acceleration
 - c) Enhanced steering control
 - d) Increased tire longevity
- 9) In the context of automotive electrical components, which device is responsible for regulating the engine's operating temperature?
- a) Electric horn
 - b) Electric fuel gauge
 - c) Thermostatic coil
 - d) Electric Speedo meter
- 10) What is the term for the angle between the vertical axis of the steering knuckle and a line drawn through the upper and lower ball joints of the suspension system?
- a) Camber
 - b) Caster
 - c) King pin inclination
 - d) Toe-in
- 11) Which type of brake system uses friction to slow down or stop the vehicle by pressing brake shoes against the inside of a drum?
- a) Disc brake
 - b) Hydraulic brake system
 - c) Air brake system
 - d) Internal expanding brake
- 12) Which type of drive system transmits power to the wheels through a set of gears, providing better traction and control on slippery surfaces?
- a) Torque tube drive
 - b) Air suspension system
 - c) Hybrid drive
 - d) Solar drive
- 13) What is the purpose of an Electronic Control Unit (ECU) in modern automobiles?
- a) To steer the vehicle
 - b) To control the lighting system
 - c) To regulate engine temperature
 - d) To manage various vehicle functions and optimize performance
- 14) How is the stopping distance of a vehicle affected when the dynamic weight transfer increases during braking?
- a) Stopping distance decreases
 - b) Stopping distance remains the same
 - c) Stopping distance increases
 - d) It depends on the type of brake system

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Automobile Engineering (197041702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of non-programmable calculator is allowed.

Section – I

- Q.2** a) Explain rear engine rear wheel drive with neat sketch and write its advantages and disadvantages. **06**
 b) Explain parameters considered to improve performance of automobile with necessary equations. **04**
 c) Explain electric horn with neat sketch. **04**
- Q.3** a) For the typical motor car, the road resistance is given by 23 N per 1000N the air resistance by the expression $0.0827v^2$. transmission efficiency is 88 % in top speed. Car weight is 19934N when fully loaded. Calculate: **10**
 1) The bkw required for top speed of 144km/hr.
 2) The acceleration in m/s^2 at 48 km/hr, assuming the torque at 48 km/hr in the top gear is 25% more than at 144 km/hr.
 3) The bkw required to drive the car up a gradient of 1 in 5 at 48 km/hr transmission efficiency 80% in bottom gear. The resistance being in n and velocity speed in km/hr and g is acceleration due to gravity = $9/81 m/s^2$
 b) Explain selection of gear ratio and rear axle ratio. **04**
- Q.4** a) Why Propeller shaft is mounted in inclined position? Explain construction and working of differential gear box. **08**
 b) Explain Wiper & side indicator circuit Electric horn. **06**

Section – II

- Q.5** a) What are types of power steering? explain any one with neat sketch. **06**
 b) Explain importance of slip angle, condition of Under steer & over steer. **08**
- Q.6** a) Give calculation of breaking force, stopping distance and dynamic weight transfer. **08**
 b) Explain Disc break with neat sketch. **06**
- Q.7** a) Explain Hotch- kiss and Torque tube drive with neat sketch. **06**
 b) Enlist Sensors and actuators used in automobile controls. **04**
 c) Explain Reaction members in suspension system with neat sketch. **04**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.

14

- 1) Majority of the industrial robots used in welding are built in _____ configuration.
 - a) Cylindrical
 - b) Spherical
 - c) Jointed
 - d) SC ARA
- 2) Spot welding and Arc welding are the examples of _____.
 - a) Point-to-point tasks
 - b) Continuous path tasks
 - c) Point-to-point and continuous path tasks, respectively
 - d) Continuous path task and point-to-point tasks respectively
- 3) Robot grippers for industrial robots typically employ _____ actuators.
 - a) Pneumatic
 - b) Hydraulic
 - c) Magnetic
 - d) Electric
- 4) The principle of operation of LVDT is based on the principle of variation of _____.
 - a) Self-Inductance
 - b) Mutual Inductance
 - c) Reluctance
 - d) Mutual Reluctance
- 5) The configuration for which the Jacobian matrix does not have an inverse is called a _____ configuration.
 - a) Forward
 - b) Inverse
 - c) Singular
 - d) Redundant
- 6) The aim of trajectory planning is to _____.
 - a) Determine its collision free path
 - b) Determine its time optimal path
 - c) Avoid its singularity condition
 - d) Ensure smooth variations of the robotic joint angles
- 7) Which of the following is the branch of Artificial Intelligence?
 - a) Machine Learning
 - b) Cyber forensics
 - c) Full-Stack Developer
 - d) Network Design

- 8) A production rule consists of _____.
a) A set of Rule
b) A sequence of steps
c) Set of Rule & sequence of steps
d) Arbitrary representation to problem
- 9) Fuzzy logic is usually represented as _____.
a) IF-THEN-ELSE rules
b) IF-THEN rules
c) Both IF-THEN-ELSE rules & IF-THEN rules
d) IF-ELSE- THEN rules
- 10) What's the main point of difference between human & machine intelligence?
a) Human perceive everything as a pattern while machine perceive it merely as data
b) Human have emotions
c) Human have more IQ & intellect
d) Human have sense organs
- 11) What is purpose of Axon?
a) Receptors
b) Transmitter
c) Transmission
d) Absorber
- 12) A Genetic Algorithm for optimization is most likely to succeed given _____.
a) A small population of fit and similar individuals
b) A large population of fit and similar individuals
c) A small diverse population of fit individuals
d) A large diverse population of fit individuals
- 13) The two most commonly used technologies for imaging sensors are _____.
a) RGB and HSV
b) CDD and CMOS
c) RGB and CIE
d) CCD and CMOS
- 14) _____ cameras typically find applications in laptops and mobile phones.
a) CCD
b) CMOS
c) Infrared
d) Thermal

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section - I and Section - II.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Write short note on Service Robots. **06**
b) Explain with neat sketch Cartesian and Jointed arm robots. **08**
- Q.3** a) Name the five different types of robots end effectors. Explain any two. **08**
b) Discuss the construction and working of stepper motors. List its applications. **06**
- Q.4** a) Enlist different controlling techniques used in Robotics and explain PID control in detail. **08**
b) Write short note on Joint Space scheme in Trajectory planning. **06**

Section – II

- Q.5** a) Explain Production Systems method of problem solving in AI. **08**
b) Explain Branch and Bound method of problem solving in AI. **06**
- Q.6** a) Explain Fuzzy Logic Architecture with neat sketch. **06**
b) Explain Crossover and Mutation terms in Genetic Algorithm. **08**
- Q.7** a) What do you understand by the term image segmentation? Discuss two techniques of image segmentation. **06**
b) What is machine vision? Explain it in context of industrial robotics. Also explain components of Machine vision system. **08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.

14

- 1) A production rule consists of _____.
 - a) A set of Rule
 - b) A sequence of steps
 - c) Set of Rule & sequence of steps
 - d) Arbitrary representation to problem
- 2) Fuzzy logic is usually represented as _____.
 - a) IF-THEN-ELSE rules
 - b) IF-THEN rules
 - c) Both IF-THEN-ELSE rules & IF-THEN rules
 - d) IF-ELSE- THEN rules
- 3) What's the main point of difference between human & machine intelligence?
 - a) Human perceive everything as a pattern while machine perceive it merely as data
 - b) Human have emotions
 - c) Human have more IQ & intellect
 - d) Human have sense organs
- 4) What is purpose of Axon?

a) Receptors	b) Transmitter
c) Transmission	d) Absorber
- 5) A Genetic Algorithm for optimization is most likely to succeed given _____.
 - a) A small population of fit and similar individuals
 - b) A large population of fit and similar individuals
 - c) A small diverse population of fit individuals
 - d) A large diverse population of fit individuals
- 6) The two most commonly used technologies for imaging sensors are _____.

a) RGB and HSV	b) CDD and CMOS
c) RGB and CIE	d) CCD and CMOS
- 7) _____ cameras typically find applications in laptops and mobile phones.

a) CCD	b) CMOS
c) Infrared	d) Thermal

- 8) Majority of the industrial robots used in welding are built in _____ configuration.
- a) Cylindrical
 - b) Spherical
 - c) Jointed
 - d) SC ARA
- 9) Spot welding and Arc welding are the examples of _____.
- a) Point-to-point tasks
 - b) Continuous path tasks
 - c) Point-to-point and continuous path tasks, respectively
 - d) Continuous path task and point-to-point tasks respectively
- 10) Robot grippers for industrial robots typically employ _____ actuators.
- a) Pneumatic
 - b) Hydraulic
 - c) Magnetic
 - d) Electric
- 11) The principle of operation of LVDT is based on the principle of variation of _____.
- a) Self-Inductance
 - b) Mutual Inductance
 - c) Reluctance
 - d) Mutual Reluctance
- 12) The configuration for which the Jacobian matrix does not have an inverse is called a _____ configuration.
- a) Forward
 - b) Inverse
 - c) Singular
 - d) Redundant
- 13) The aim of trajectory planning is to _____.
- a) Determine its collision free path
 - b) Determine its time optimal path
 - c) Avoid its singularity condition
 - d) Ensure smooth variations of the robotic joint angles
- 14) Which of the following is the branch of Artificial Intelligence?
- a) Machine Learning
 - b) Cyber forensics
 - c) Full-Stack Developer
 - d) Network Design

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section - I and Section - II.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Write short note on Service Robots. **06**
b) Explain with neat sketch Cartesian and Jointed arm robots. **08**
- Q.3** a) Name the five different types of robots end effectors. Explain any two. **08**
b) Discuss the construction and working of stepper motors. List its applications. **06**
- Q.4** a) Enlist different controlling techniques used in Robotics and explain PID control in detail. **08**
b) Write short note on Joint Space scheme in Trajectory planning. **06**

Section – II

- Q.5** a) Explain Production Systems method of problem solving in AI. **08**
b) Explain Branch and Bound method of problem solving in AI. **06**
- Q.6** a) Explain Fuzzy Logic Architecture with neat sketch. **06**
b) Explain Crossover and Mutation terms in Genetic Algorithm. **08**
- Q.7** a) What do you understand by the term image segmentation? Discuss two techniques of image segmentation. **06**
b) What is machine vision? Explain it in context of industrial robotics. Also explain components of Machine vision system. **08**

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.

14

- 1) What is purpose of Axon?

a) Receptors	b) Transmitter
c) Transmission	d) Absorber
- 2) A Genetic Algorithm for optimization is most likely to succeed given _____.
 - a) A small population of fit and similar individuals
 - b) A large population of fit and similar individuals
 - c) A small diverse population of fit individuals
 - d) A large diverse population of fit individuals
- 3) The two most commonly used technologies for imaging sensors are _____.

a) RGB and HSV	b) CDD and CMOS
c) RGB and CIE	d) CCD and CMOS
- 4) _____ cameras typically find applications in laptops and mobile phones.

a) CCD	b) CMOS
c) Infrared	d) Thermal
- 5) Majority of the industrial robots used in welding are built in _____ configuration.

a) Cylindrical	b) Spherical
c) Jointed	d) SC ARA
- 6) Spot welding and Arc welding are the examples of _____.
 - a) Point-to-point tasks
 - b) Continuous path tasks
 - c) Point-to-point and continuous path tasks, respectively
 - d) Continuous path task and point-to-point tasks respectively
- 7) Robot grippers for industrial robots typically employ _____ actuators.

a) Pneumatic	b) Hydraulic
c) Magnetic	d) Electric
- 8) The principle of operation of LVDT is based on the principle of variation of _____.

a) Self-Inductance	b) Mutual Inductance
c) Reluctance	d) Mutual Reluctance

- 9) The configuration for which the Jacobian matrix does not have an inverse is called a _____ configuration.
- a) Forward
 - b) Inverse
 - c) Singular
 - d) Redundant
- 10) The aim of trajectory planning is to _____.
- a) Determine its collision free path
 - b) Determine its time optimal path
 - c) Avoid its singularity condition
 - d) Ensure smooth variations of the robotic joint angles
- 11) Which of the following is the branch of Artificial Intelligence?
- a) Machine Learning
 - b) Cyber forensics
 - c) Full-Stack Developer
 - d) Network Design
- 12) A production rule consists of _____.
- a) A set of Rule
 - b) A sequence of steps
 - c) Set of Rule & sequence of steps
 - d) Arbitrary representation to problem
- 13) Fuzzy logic is usually represented as _____.
- a) IF-THEN-ELSE rules
 - b) IF-THEN rules
 - c) Both IF-THEN-ELSE rules & IF-THEN rules
 - d) IF-ELSE- THEN rules
- 14) What's the main point of difference between human & machine intelligence?
- a) Human perceive everything as a pattern while machine perceive it merely as data
 - b) Human have emotions
 - c) Human have more IQ & intellect
 - d) Human have sense organs

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section - I and Section - II.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Write short note on Service Robots. **06**
b) Explain with neat sketch Cartesian and Jointed arm robots. **08**
- Q.3** a) Name the five different types of robots end effectors. Explain any two. **08**
b) Discuss the construction and working of stepper motors. List its applications. **06**
- Q.4** a) Enlist different controlling techniques used in Robotics and explain PID control in detail. **08**
b) Write short note on Joint Space scheme in Trajectory planning. **06**

Section – II

- Q.5** a) Explain Production Systems method of problem solving in AI. **08**
b) Explain Branch and Bound method of problem solving in AI. **06**
- Q.6** a) Explain Fuzzy Logic Architecture with neat sketch. **06**
b) Explain Crossover and Mutation terms in Genetic Algorithm. **08**
- Q.7** a) What do you understand by the term image segmentation? Discuss two techniques of image segmentation. **06**
b) What is machine vision? Explain it in context of industrial robotics. Also explain components of Machine vision system. **08**

Seat
No.

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Objective Questions.**14**

- 1) The aim of trajectory planning is to _____.
 - a) Determine its collision free path
 - b) Determine its time optimal path
 - c) Avoid its singularity condition
 - d) Ensure smooth variations of the robotic joint angles
- 2) Which of the following is the branch of Artificial Intelligence?
 - a) Machine Learning
 - b) Cyber forensics
 - c) Full-Stack Developer
 - d) Network Design
- 3) A production rule consists of _____.
 - a) A set of Rule
 - b) A sequence of steps
 - c) Set of Rule & sequence of steps
 - d) Arbitrary representation to problem
- 4) Fuzzy logic is usually represented as _____.
 - a) IF-THEN-ELSE rules
 - b) IF-THEN rules
 - c) Both IF-THEN-ELSE rules & IF-THEN rules
 - d) IF-ELSE- THEN rules
- 5) What's the main point of difference between human & machine intelligence?
 - a) Human perceive everything as a pattern while machine perceive it merely as data
 - b) Human have emotions
 - c) Human have more IQ & intellect
 - d) Human have sense organs
- 6) What is purpose of Axon?
 - a) Receptors
 - b) Transmitter
 - c) Transmission
 - d) Absorber

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Robotics and Artificial Intelligence (197041703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section - I and Section - II.
2) Figures to the right indicates full marks.

Section – I

- Q.2** a) Write short note on Service Robots. **06**
b) Explain with neat sketch Cartesian and Jointed arm robots. **08**
- Q.3** a) Name the five different types of robots end effectors. Explain any two. **08**
b) Discuss the construction and working of stepper motors. List its applications. **06**
- Q.4** a) Enlist different controlling techniques used in Robotics and explain PID control in detail. **08**
b) Write short note on Joint Space scheme in Trajectory planning. **06**

Section – II

- Q.5** a) Explain Production Systems method of problem solving in AI. **08**
b) Explain Branch and Bound method of problem solving in AI. **06**
- Q.6** a) Explain Fuzzy Logic Architecture with neat sketch. **06**
b) Explain Crossover and Mutation terms in Genetic Algorithm. **08**
- Q.7** a) What do you understand by the term image segmentation? Discuss two techniques of image segmentation. **06**
b) What is machine vision? Explain it in context of industrial robotics. Also explain components of Machine vision system. **08**

- 9) Condition based maintenance is used in _____ maintenance.
- a) Breakdown
 - b) Predictive
 - c) Preventive
 - d) None of above
- 10) Penalty cost is included in _____.
- a) Ordering cost
 - b) Shortage cost
 - c) Holding cost
 - d) None of these
- 11) FMS Stands for _____.
- a) Failure Machine Service
 - b) Flexible Machine System
 - c) Flexible Manufacturing System
 - d) None of these
- 12) In ABC analysis C items require _____.
- a) No safety stock
 - b) Minimum safety stock
 - c) Moderate safety stock
 - d) High safety stock
- 13) Assigning specific jobs to each work center for the planning period is _____.
- a) Loading
 - b) Sequencing
 - c) Scheduling
 - d) Expediting
- 14) The capacity licensed by various regulatory agencies or government authorities is _____ capacity.
- a) Design
 - b) System
 - c) Installed
 - d) Licensed

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.

Section – I

- Q.2** a) Define production/operations management. Explain types of manufacturing systems. **07**
 b) Explain aggregate planning procedure. **07**
- Q.3** a) Discuss in detail production planning and control. **07**
 b) With the help of following data project, the trend of sales for the next 3 years using least square method: **07**

Year	2017	2018	2019	2020	2021	2022
Sales (in Lakhs of rupees)	100	110	115	120	135	140

- Q.4 Write a note on: (Any Two)** **14**
 a) Investment decision and replacement analysis.
 b) Line balancing
 c) ABC analysis

Section – II

- Q.5** a) What are the objectives of inventory management? Explain types of inventory. **07**
 b) ABC corporation currently practices the following system for the procurement of an item. Number of orders placed in a year = 8, ordering cost = Rs. 750/order. Each time order quantity = 250, Carrying cost = 40% of cost per unit. Cost per unit = Rs. 40. Calculate Economic order quantity and how much money can be saved by employing EOQ. **07**
- Q.6** a) What are the objectives of value analysis? Discuss the procedure of value analysis. **07**
 b) Explain the types of Maintenance. **07**
- Q.7 Write a note on: (Any Two)** **14**
 a) Lean Manufacturing
 b) JIT
 c) Six Sigma

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Line balancing is commonly used in _____.
 a) Mass production b) Job production
 c) Batch production d) None of the above
- 2) Condition based maintenance is used in _____ maintenance.
 a) Breakdown b) Predictive
 c) Preventive d) None of above
- 3) Penalty cost is included in _____.
 a) Ordering cost b) Shortage cost
 c) Holding cost d) None of these
- 4) FMS Stands for _____.
 a) Failure Machine Service b) Flexible Machine System
 c) Flexible Manufacturing System d) None of these
- 5) In ABC analysis C items require _____.
 a) No safety stock b) Minimum safety stock
 c) Moderate safety stock d) High safety stock
- 6) Assigning specific jobs to each work center for the planning period is _____.
 a) Loading b) Sequencing
 c) Scheduling d) Expediting
- 7) The capacity licensed by various regulatory agencies or government authorities is _____ capacity.
 a) Design b) System
 c) Installed d) Licensed
- 8) Medium term forecasting considers a period of _____.
 a) One year or less b) One to three years
 c) More than three years d) None of these

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.

Section – I

- Q.2** a) Define production/operations management. Explain types of manufacturing systems. **07**
 b) Explain aggregate planning procedure. **07**
- Q.3** a) Discuss in detail production planning and control. **07**
 b) With the help of following data project, the trend of sales for the next 3 years using least square method: **07**

Year	2017	2018	2019	2020	2021	2022
Sales (in Lakhs of rupees)	100	110	115	120	135	140

- Q.4 Write a note on: (Any Two)** **14**
 a) Investment decision and replacement analysis.
 b) Line balancing
 c) ABC analysis

Section – II

- Q.5** a) What are the objectives of inventory management? Explain types of inventory. **07**
 b) ABC corporation currently practices the following system for the procurement of an item. Number of orders placed in a year = 8, ordering cost = Rs. 750/order. Each time order quantity = 250, Carrying cost = 40% of cost per unit. Cost per unit = Rs. 40. Calculate Economic order quantity and how much money can be saved by employing EOQ. **07**
- Q.6** a) What are the objectives of value analysis? Discuss the procedure of value analysis. **07**
 b) Explain the types of Maintenance. **07**
- Q.7 Write a note on: (Any Two)** **14**
 a) Lean Manufacturing
 b) JIT
 c) Six Sigma

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) FMS Stands for _____.
 - a) Failure Machine Service
 - b) Flexible Machine System
 - c) Flexible Manufacturing System
 - d) None of these
- 2) In ABC analysis C items require _____.
 - a) No safety stock
 - b) Minimum safety stock
 - c) Moderate safety stock
 - d) High safety stock
- 3) Assigning specific jobs to each work center for the planning period is _____.
 - a) Loading
 - b) Sequencing
 - c) Scheduling
 - d) Expediting
- 4) The capacity licensed by various regulatory agencies or government authorities is _____ capacity.
 - a) Design
 - b) System
 - c) Installed
 - d) Licensed
- 5) Medium term forecasting considers a period of _____.
 - a) One year or less
 - b) One to three years
 - c) More than three years
 - d) None of these
- 6) The length of time between placing an order and receipt of material is called as _____.
 - a) Order time
 - b) Lead time
 - c) Cycle time
 - d) Process time
- 7) Executive opinion method of forecasting is _____.
 - a) Qualitative technique
 - b) Quantitative technique
 - c) Both a) and b)
 - d) None of these
- 8) OEE in TPM means _____.
 - a) Overall Engine Effectiveness
 - b) Overall Engine Emission
 - c) Overall Equipment Effectiveness
 - d) None of these

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.

Section – I

- Q.2** a) Define production/operations management. Explain types of manufacturing systems. **07**
 b) Explain aggregate planning procedure. **07**
- Q.3** a) Discuss in detail production planning and control. **07**
 b) With the help of following data project, the trend of sales for the next 3 years using least square method: **07**

Year	2017	2018	2019	2020	2021	2022
Sales (in Lakhs of rupees)	100	110	115	120	135	140

- Q.4 Write a note on: (Any Two)** **14**
 a) Investment decision and replacement analysis.
 b) Line balancing
 c) ABC analysis

Section – II

- Q.5** a) What are the objectives of inventory management? Explain types of inventory. **07**
 b) ABC corporation currently practices the following system for the procurement of an item. Number of orders placed in a year = 8, ordering cost = Rs. 750/order. Each time order quantity = 250, Carrying cost = 40% of cost per unit. Cost per unit = Rs. 40. Calculate Economic order quantity and how much money can be saved by employing EOQ. **07**
- Q.6** a) What are the objectives of value analysis? Discuss the procedure of value analysis. **07**
 b) Explain the types of Maintenance. **07**
- Q.7 Write a note on: (Any Two)** **14**
 a) Lean Manufacturing
 b) JIT
 c) Six Sigma

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) What is/ are the objective of Value Analysis?

a) Cost reduction	b) Quality improvement
c) Time reduction	d) All of the above
- 2) _____ method of forecasting calculates rolling average for constant period.

a) Least square	b) Exponential smoothing
c) Both a & b	d) None of these
- 3) Line balancing is commonly used in _____.

a) Mass production	b) Job production
c) Batch production	d) None of the above
- 4) Condition based maintenance is used in _____ maintenance.

a) Breakdown	b) Predictive
c) Preventive	d) None of above
- 5) Penalty cost is included in _____.

a) Ordering cost	b) Shortage cost
c) Holding cost	d) None of these
- 6) FMS Stands for _____.

a) Failure Machine Service	b) Flexible Machine System
c) Flexible Manufacturing System	d) None of these
- 7) In ABC analysis C items require _____.

a) No safety stock	b) Minimum safety stock
c) Moderate safety stock	d) High safety stock
- 8) Assigning specific jobs to each work center for the planning period is _____.

a) Loading	b) Sequencing
c) Scheduling	d) Expediting
- 9) The capacity licensed by various regulatory agencies or government authorities is _____ capacity.

a) Design	b) System
c) Installed	d) Licensed

- 10)** Medium term forecasting considers a period of _____.
a) One year or less b) One to three years
c) More than three years d) None of these
- 11)** The length of time between placing an order and receipt of material is called as _____.
a) Order time b) Lead time
c) Cycle time d) Process time
- 12)** Executive opinion method of forecasting is _____.
a) Qualitative technique b) Quantitative technique
c) Both a) and b) d) None of these
- 13)** OEE in TPM means _____.
a) Overall Engine Effectiveness
b) Overall Engine Emission
c) Overall Equipment Effectiveness
d) None of these
- 14)** When the ordering cost is increased to 16 times, the EOQ will be increased to _____.
a) 2 times b) 16 times
c) 8 times d) 4 times

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Production and Operations Management (197041706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each Section.
 2) Figures to right indicate full marks.

Section – I

- Q.2** a) Define production/operations management. Explain types of manufacturing systems. **07**
 b) Explain aggregate planning procedure. **07**
- Q.3** a) Discuss in detail production planning and control. **07**
 b) With the help of following data project, the trend of sales for the next 3 years using least square method: **07**

Year	2017	2018	2019	2020	2021	2022
Sales (in Lakhs of rupees)	100	110	115	120	135	140

- Q.4 Write a note on: (Any Two)** **14**
 a) Investment decision and replacement analysis.
 b) Line balancing
 c) ABC analysis

Section – II

- Q.5** a) What are the objectives of inventory management? Explain types of inventory. **07**
 b) ABC corporation currently practices the following system for the procurement of an item. Number of orders placed in a year = 8, ordering cost = Rs. 750/order. Each time order quantity = 250, Carrying cost = 40% of cost per unit. Cost per unit = Rs. 40. Calculate Economic order quantity and how much money can be saved by employing EOQ. **07**
- Q.6** a) What are the objectives of value analysis? Discuss the procedure of value analysis. **07**
 b) Explain the types of Maintenance. **07**
- Q.7 Write a note on: (Any Two)** **14**
 a) Lean Manufacturing
 b) JIT
 c) Six Sigma

Seat No.	
-------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of following input for manufacturing process?

a) man material machine	b) man material management
c) man machine operator	d) none of above
- 2) product is _____ production phase in the manufacturing.

a) Final	b) Middle
c) Starting	d) none of above
- 3) Process refer to _____.

a) sequence of operation	b) Part of product engineering
c) Middle stage between raw material and final product	d) none of above
- 4) Which of the following can be categorized as mass production. Tooling

a) Jig and fixture	b) SPM
c) Gauges	d) single point cutting tool
- 5) // Symbol used in drawing to interpret.

a) Symmetry	b) Parallelity
c) Flatness	d) Position
- 6) In mass production for checking shaft which of the following gauges are used?

a) snap gauges,	b) dial gauges,
c) plug gauges,	d) slip gauges
- 7) Which of the following parameters not to be considered as cutting parameters?

a) spindle RPM	b) Speed
c) Feed	d) Depth of cut
- 8) Optimal resources utilization in manufacturing Industry It is role of _____.

a) Product Engineering	b) Process Engineering
c) Industrial Engineering	d) None of above

- 9) Drilling and reaming operation comes under the type of operations _____.
a) secondary operation b) qualifying operation
c) auxiliary operation d) none of above
- 10) To determine the basic manufacturing process is the function of _____.
a) Product Engineering b) Process Engineering
c) Design Engineering d) Industrial Engineering
- 11) Which is the following forming operations _____.
a) Broaching b) Casting
c) Drilling d) bending
- 12) Product heat treatment comes under _____.
a) auxiliary operation b) primary operation
c) secondary operation d) Critical operations
- 13) _____ of the following product is Continuous Production system.
a) sugar industry b) casting Industry
c) Automobile Industry d) Shipbuilding Industry
- 14) Type of feet required between shaft and bearing.
a) H7g6 b) H7h6
c) H7ph d) H7n6

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)

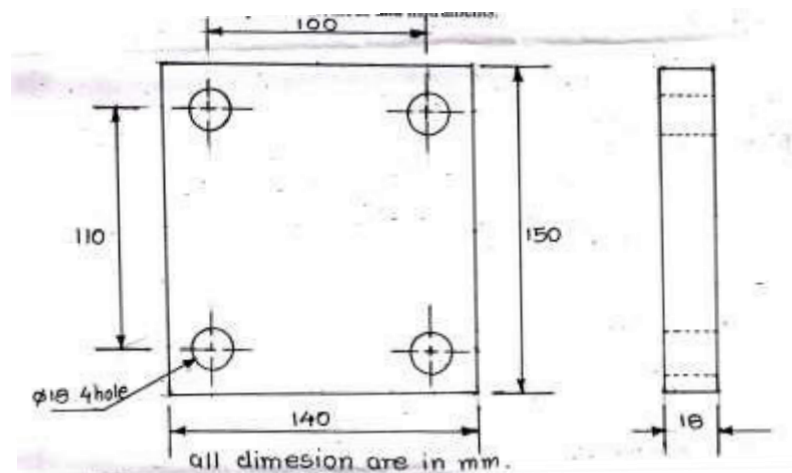
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 and Q. No. 6 are compulsory.
 2) Attempt any one question from the remaining in each both sections.
 3) Figures to right indicate full marks.
 4) Make suitable assumptions, if required and state them clearly.

Section – I

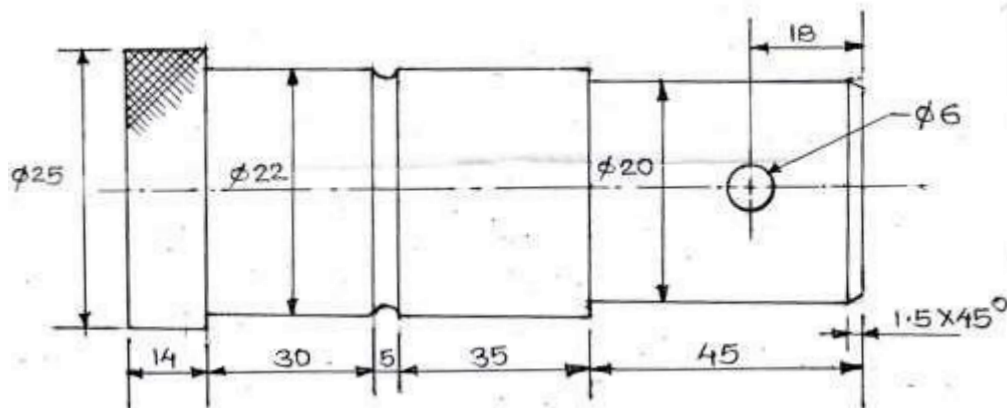
- Q.2** Prepare a process plan for manufacturing the component in figure 1 w.r.t data supplied there in along following lines. **14**
- Route sheet
 - Operations list indicating sequence of operation indicating machine selected, holding methods, tool specifications and machining parameter per set up
 - Gauges and or inspection methods and instruments.



- Q.3** a) Explain in brief classification of manufacturing process. **07**
 b) Distinguish. Between product and process engineering in organization. **07**
- Q.4** a) Distinguish between dimensional and geometrical tolerance with one example **07**
 b) Explains with one example different causes of workpiece variations. **07**
- Q.5** a) What is Part print analysis list different steps involved in part print analysis. **07**
 b) Explain in brief methods to control the tolerance. Stack week one example. **07**

Section – II

- Q.6** Draw the process picture sheet for any four operations for manufacturing the component in Figure w.r.t. sequence. Use standard symbols for locating whenever required. **14**



- Q.7** a) Explain in brief different aspects to be considered in feasibility study. **07**
 b) What are the various sources of information to select machine and equipment? **07**
- Q.8** a) Explain in brief. Classification of operations with one example for each operation. **07**
 b) List various objectives to be considered while selecting proper work holding devices. **07**
- Q.9** a) Explain in brief selection criteria for GPM and SPM for processing a job. **07**
 b) Explain in brief job production, mass production list common points to be considered for process sheet. **07**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Optimal resources utilization in manufacturing Industry It is role of _____.
 a) Product Engineering b) Process Engineering
 c) Industrial Engineering d) None of above
- 2) Drilling and reaming operation comes under the type of operations _____.
 a) secondary operation b) qualifying operation
 c) auxiliary operation d) none of above
- 3) To determine the basic manufacturing process is the function of _____.
 a) Product Engineering b) Process Engineering
 c) Design Engineering d) Industrial Engineering
- 4) Which is the following forming operations _____.
 a) Broaching b) Casting
 c) Drilling d) bending
- 5) Product heat treatment comes under _____.
 a) auxiliary operation b) primary operation
 c) secondary operation d) Critical operations
- 6) _____ of the following product is Continuous Production system.
 a) sugar industry b) casting Industry
 c) Automobile Industry d) Shipbuilding Industry
- 7) Type of fit required between shaft and bearing.
 a) H7g6 b) H7h6
 c) H7p6 d) H7n6
- 8) Which of following input for manufacturing process?
 a) man material machine b) man material management
 c) man machine operator d) none of above

Seat No.	
----------	--

Set Q

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)**

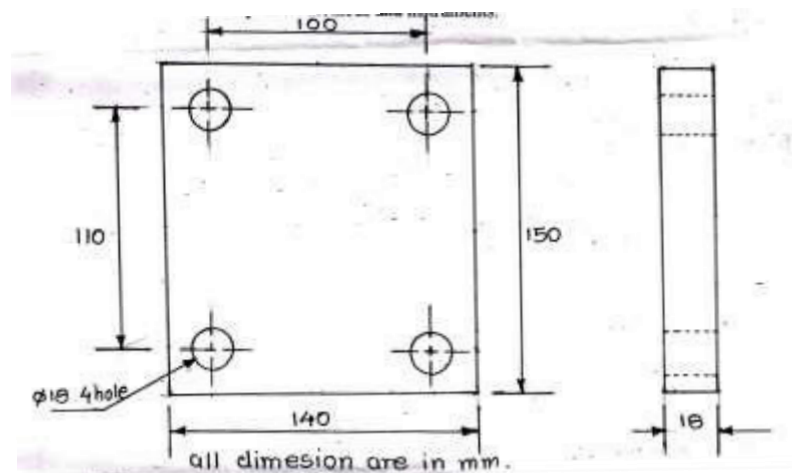
Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 and Q. No. 6 are compulsory.
2) Attempt any one question from the remaining in each both sections.
3) Figures to right indicate full marks.
4) Make suitable assumptions, if required and state them clearly.

Section – I

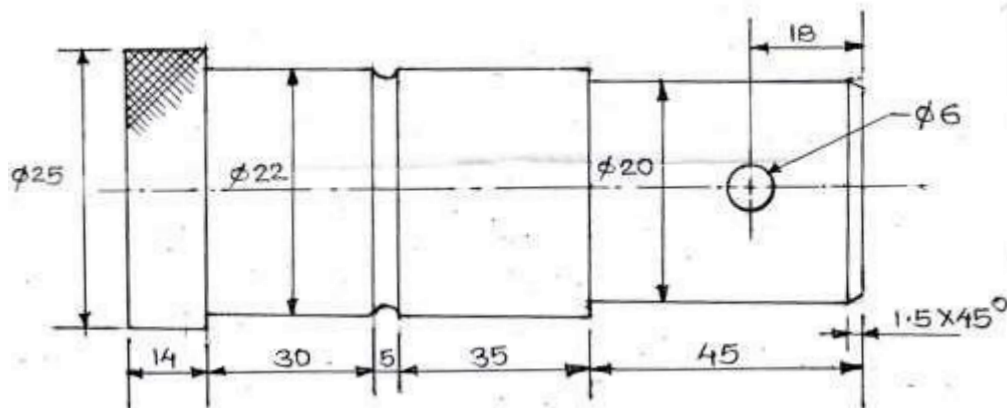
- Q.2** Prepare a process plan for manufacturing the component in figure 1 w.r.t data supplied there in along following lines. **14**
- Route sheet
 - Operations list indicating sequence of operation indicating machine selected, holding methods, tool specifications and machining parameter per set up
 - Gauges and or inspection methods and instruments.



- Q.3** a) Explain in brief classification of manufacturing process. **07**
b) Distinguish. Between product and process engineering in organization. **07**
- Q.4** a) Distinguish between dimensional and geometrical tolerance with one example **07**
b) Explains with one example different causes of workpiece variations. **07**
- Q.5** a) What is Part print analysis list different steps involved in part print analysis. **07**
b) Explain in brief methods to control the tolerance. Stack week one example. **07**

Section – II

- Q.6** Draw the process picture sheet for any four operations for manufacturing the component in Figure w.r.t. sequence. Use standard symbols for locating whenever required. **14**



- Q.7** a) Explain in brief different aspects to be considered in feasibility study. **07**
 b) What are the various sources of information to select machine and equipment? **07**
- Q.8** a) Explain in brief. Classification of operations with one example for each operation. **07**
 b) List various objectives to be considered while selecting proper work holding devices. **07**
- Q.9** a) Explain in brief selection criteria for GPM and SPM for processing a job. **07**
 b) Explain in brief job production, mass production list common points to be considered for process sheet. **07**

- 9) // Symbol used in drawing to interpret.
- | | |
|-------------|----------------|
| a) Symmetry | b) Parallelity |
| c) Flatness | d) Position |
- 10) In mass production for checking shaft which of the following gauges are used?
- | | |
|-----------------|-----------------|
| a) snap gauges, | b) dial gauges, |
| c) plug gauges, | d) slip gauges |
- 11) Which of the following parameters not to be considered as cutting parameters?
- | | |
|----------------|-----------------|
| a) spindle RPM | b) Speed |
| c) Feed | d) Depth of cut |
- 12) Optimal resources utilization in manufacturing Industry It is role of ____.
- | | |
|---------------------------|------------------------|
| a) Product Engineering | b) Process Engineering |
| c) Industrial Engineering | d) None of above |
- 13) Drilling and reaming operation comes under the type of operations ____.
- | | |
|------------------------|-------------------------|
| a) secondary operation | b) qualifying operation |
| c) auxiliary operation | d) none of above |
- 14) To determine the basic manufacturing process is the function of ____.
- | | |
|------------------------|---------------------------|
| a) Product Engineering | b) Process Engineering |
| c) Design Engineering | d) Industrial Engineering |

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)

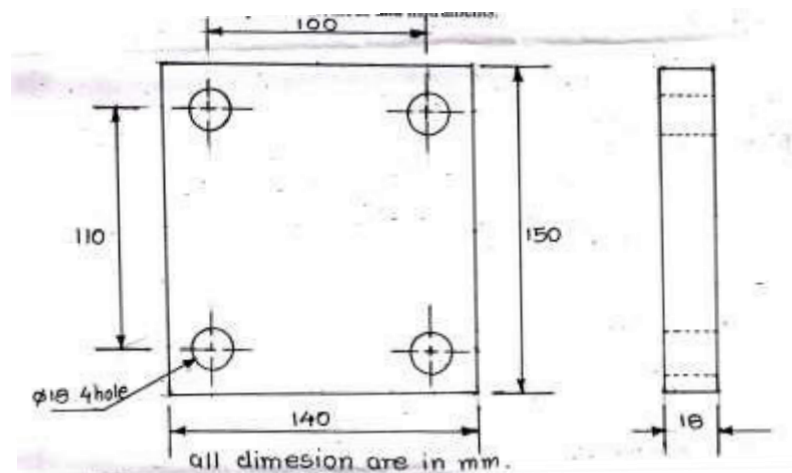
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 and Q. No. 6 are compulsory.
 2) Attempt any one question from the remaining in each both sections.
 3) Figures to right indicate full marks.
 4) Make suitable assumptions, if required and state them clearly.

Section – I

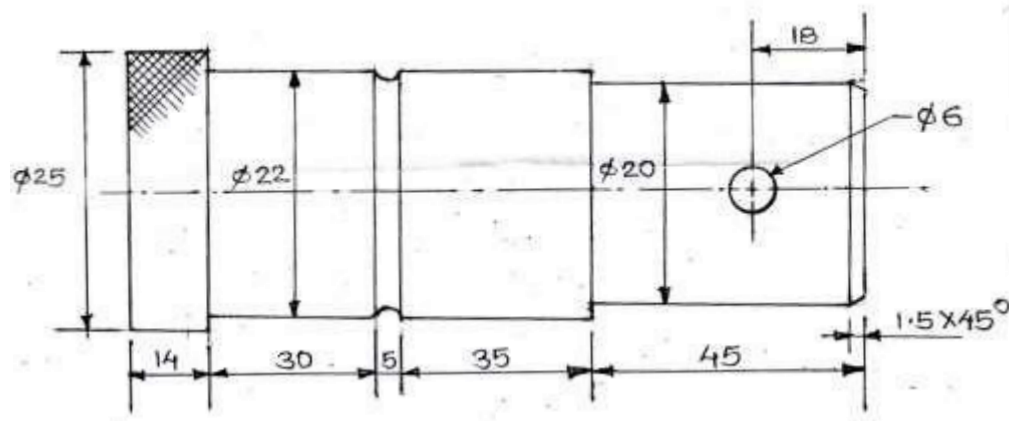
- Q.2** Prepare a process plan for manufacturing the component in figure 1 w.r.t data supplied there in along following lines. **14**
- Route sheet
 - Operations list indicating sequence of operation indicating machine selected, holding methods, tool specifications and machining parameter per set up
 - Gauges and or inspection methods and instruments.



- Q.3** a) Explain in brief classification of manufacturing process. **07**
 b) Distinguish. Between product and process engineering in organization. **07**
- Q.4** a) Distinguish between dimensional and geometrical tolerance with one example **07**
 b) Explains with one example different causes of workpiece variations. **07**
- Q.5** a) What is Part print analysis list different steps involved in part print analysis. **07**
 b) Explain in brief methods to control the tolerance. Stack week one example. **07**

Section – II

- Q.6** Draw the process picture sheet for any four operations for manufacturing the component in Figure w.r.t. sequence. Use standard symbols for locating whenever required. **14**



- Q.7** a) Explain in brief different aspects to be considered in feasibility study. **07**
 b) What are the various sources of information to select machine and equipment? **07**
- Q.8** a) Explain in brief. Classification of operations with one example for each operation. **07**
 b) List various objectives to be considered while selecting proper work holding devices. **07**
- Q.9** a) Explain in brief selection criteria for GPM and SPM for processing a job. **07**
 b) Explain in brief job production, mass production list common points to be considered for process sheet. **07**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) In mass production for checking shaft which of the following gauges are used?

a) snap gauges,	b) dial gauges,
c) plug gauges,	d) slip gauges
- 2) Which of the following parameters not to be considered as cutting parameters?

a) spindle RPM	b) Speed
c) Feed	d) Depth of cut
- 3) Optimal resources utilization in manufacturing Industry It is role of _____.

a) Product Engineering	b) Process Engineering
c) Industrial Engineering	d) None of above
- 4) Drilling and reaming operation comes under the type of operations _____.

a) secondary operation	b) qualifying operation
c) auxiliary operation	d) none of above
- 5) To determine the basic manufacturing process is the function of _____.

a) Product Engineering	b) Process Engineering
c) Design Engineering	d) Industrial Engineering
- 6) Which is the following forming operations _____.

a) Broaching	b) Casting
c) Drilling	d) bending
- 7) Product heat treatment comes under _____.

a) auxiliary operation	b) primary operation
c) secondary operation	d) Critical operations
- 8) _____ of the following product is Continuous Production system.

a) sugar industry	b) casting Industry
c) Automobile Industry	d) Shipbuilding Industry
- 9) Type of fit required between shaft and bearing.

a) H7g6	b) H7h6
c) H7p6	d) H7n6

- 10)** Which of following input for manufacturing process?
a) man material machine b) man material management
c) man machine operator d) none of above
- 11)** product is _____ production phase in the manufacturing.
a) Final b) Middle
c) Starting d) none of above
- 12)** Process refer to _____.
a) sequence of operation
b) Part of product engineering
c) Middle stage between raw material and final product
d) none of above
- 13)** Which of the following can be categorized as mass production. Tooling
a) Jig and fixture b) SPM
c) Gauges d) single point cutting tool
- 14)** // Symbol used in drawing to interpret.
a) Symmetry b) Parallelity
c) Flatness d) Position

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Process Engineering (197041708)

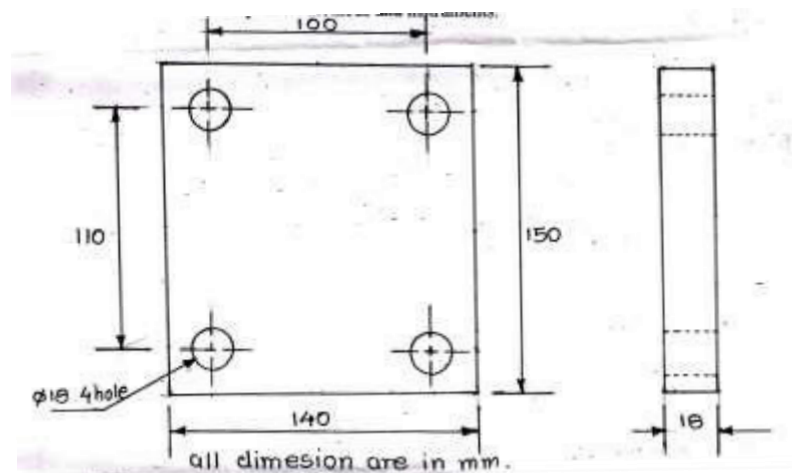
Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Q. No. 2 and Q. No. 6 are compulsory.
 2) Attempt any one question from the remaining in each both sections.
 3) Figures to right indicate full marks.
 4) Make suitable assumptions, if required and state them clearly.

Section – I

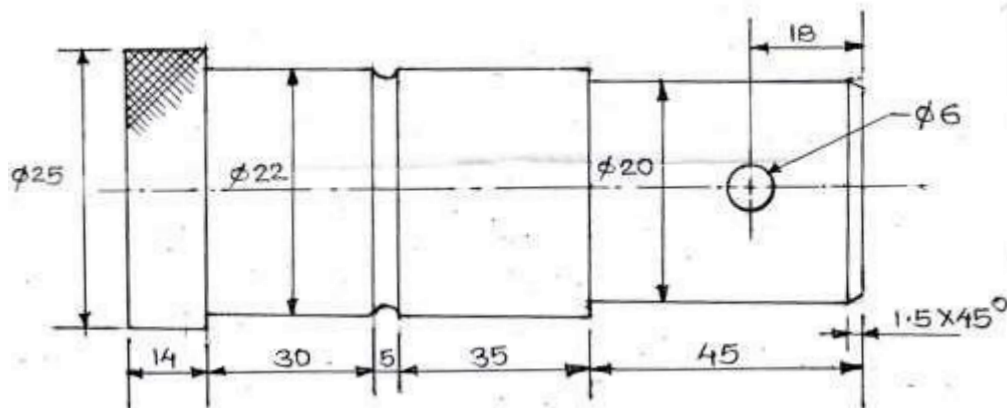
- Q.2** Prepare a process plan for manufacturing the component in figure 1 w.r.t data supplied there in along following lines. **14**
- Route sheet
 - Operations list indicating sequence of operation indicating machine selected, holding methods, tool specifications and machining parameter per set up
 - Gauges and or inspection methods and instruments.



- Q.3** a) Explain in brief classification of manufacturing process. **07**
 b) Distinguish. Between product and process engineering in organization. **07**
- Q.4** a) Distinguish between dimensional and geometrical tolerance with one example **07**
 b) Explains with one example different causes of workpiece variations. **07**
- Q.5** a) What is Part print analysis list different steps involved in part print analysis. **07**
 b) Explain in brief methods to control the tolerance. Stack week one example. **07**

Section – II

- Q.6** Draw the process picture sheet for any four operations for manufacturing the component in Figure w.r.t. sequence. Use standard symbols for locating whenever required. **14**



- Q.7** a) Explain in brief different aspects to be considered in feasibility study. **07**
 b) What are the various sources of information to select machine and equipment? **07**
- Q.8** a) Explain in brief. Classification of operations with one example for each operation. **07**
 b) List various objectives to be considered while selecting proper work holding devices. **07**
- Q.9** a) Explain in brief selection criteria for GPM and SPM for processing a job. **07**
 b) Explain in brief job production, mass production list common points to be considered for process sheet. **07**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.
4) Use of non-programmable scientific calculator is allowed.
5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Shape function is usually _____.
 - a) The coefficient that appears in the interpolation polynomial
 - b) Written for each individual node of finite element
 - c) Interchanged with the terminology interpolation polynomial
 - d) All of the above
- 2) If element size is reduced, number of elements _____.
 - a) increases
 - b) decreases
 - c) remains constant
 - d) gets deleted
- 3) The loading, constraints and other external effects applied to a model is _____.
 - a) Boundary conditions
 - b) Meshing
 - c) Constraining
 - d) Modeling
- 4) Preprocessing means _____.
 - a) Solving
 - b) Meshing
 - c) Result analysis
 - d) None of the above
- 5) Sum of all the natural coordinates of the node is _____.
 - a) One
 - b) Zero
 - c) Can not be predicted
 - d) none of the above
- 6) The interpolation function for a CST element is given by _____.
 - a) $U = a_1 + a_2x + a_3y$
 - b) $U = a_1 + a_2x + a_3x^2$
 - c) $U = a_1 + a_2x + a_3x^2 + a_4y$
 - d) $U = a_1 + a_2x + a_3y + a_4z$
- 7) Complex elements are defined as those elements which _____.
 - a) have higher order interpolation polynomials
 - b) have sides parallel to coordinate system
 - c) have sides parallel to coordinate system and use higher order interpolation polynomials
 - d) have polynomials with only linear and constant terms

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
2) Figures to right indicate full marks.
3) Use of non-programmable scientific calculator is allowed.
4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

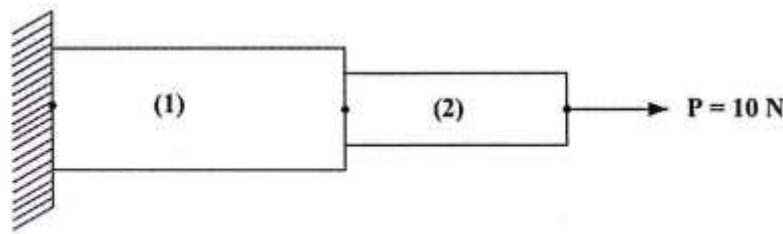


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

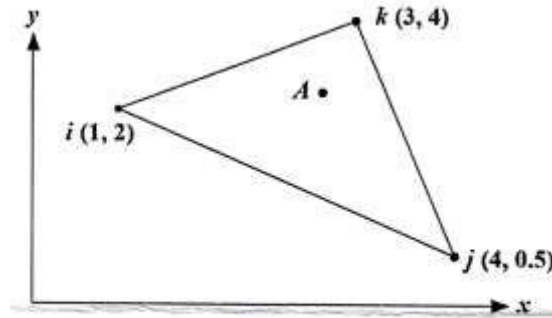


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

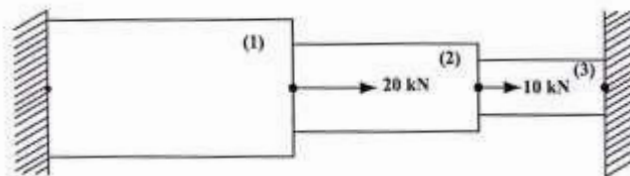


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Use of non-programmable scientific calculator is allowed.
 - 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Each node of beam element is having following degree of freedom _____.
a) 3
b) 4
c) 2
d) 1
- 2) In _____ element the value of field variable remains unchanged in the circumferential direction.
a) 1D and 2D
b) Beam
c) Truss
d) Axisymmetric
- 3) Size of shape function matrix of 2D element having 3 nodes is _____.
a) 2×6
b) 3×3
c) 4×6
d) 2×5
- 4) Formula for Galerkin method is _____.
a) $\int f(x)R(x)dx = 0$
b) $\int R(x)dx = 0$
c) $R(x) = 0$
d) $\int R^2(x)dx = 0$
- 5) A measure of distortion of a element is _____.
a) Bandwidth
b) Damping ratio
c) Aspect ratio
d) Shape function
- 6) A problem which is not a function of a time _____.
a) Eigenvalue problem
b) Steady state problem
c) Transient problem
d) Propagation problem
- 7) The three most common cases on non-linearity are _____.
a) Fluttering, Geometric, Material
b) Material, Geometric, Contact
c) Material, Fluttering, plasticity
d) Creep, Fluttering, Contact
- 8) Shape function is usually _____.
a) The coefficient that appears in the interpolation polynomial
b) Written for each individual node of finite element
c) Interchanged with the terminology interpolation polynomial
d) All of the above

- 9) If element size is reduced, number of elements _____.
a) increases
b) decreases
c) remains constant
d) gets deleted
- 10) The loading, constraints and other external effects applied to a model is _____.
a) Boundary conditions
b) Meshing
c) Constraining
d) Modeling
- 11) Preprocessing means _____.
a) Solving
b) Meshing
c) Result analysis
d) None of the above
- 12) Sum of all the natural coordinates of the node is _____.
a) One
b) Zero
c) Can not be predicted
d) none of the above
- 13) The interpolation function for a CST element is given by _____.
a) $U = a_1 + a_2x + a_3y$
b) $U = a_1 + a_2x + a_3x^2$
c) $U = a_1 + a_2x + a_3x^2 + a_4y$
d) $U = a_1 + a_2x + a_3y + a_4z$
- 14) Complex elements are defined as those elements which _____.
a) have higher order interpolation polynomials
b) have sides parallel to coordinate system
c) have sides parallel to coordinate system and use higher order interpolation polynomials
d) have polynomials with only linear and constant terms

Seat
No.

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

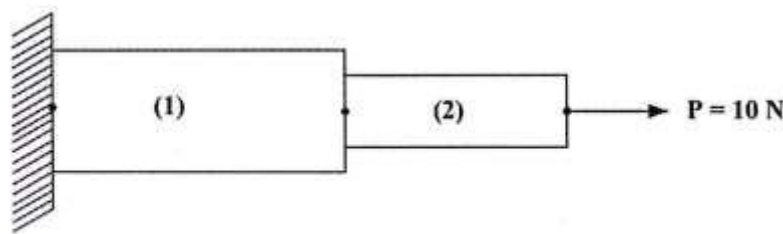


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

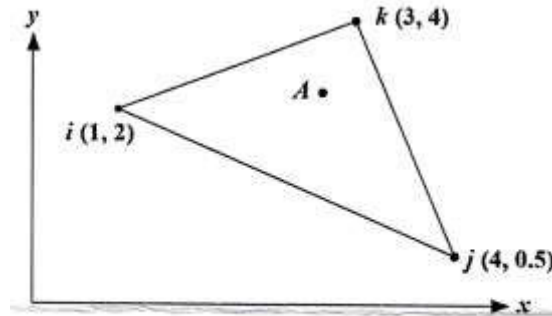


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

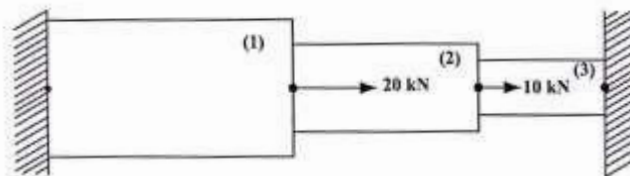


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Formula for Galerkin method is _____.
 - a) $\int f(x)R(x)dx = 0$
 - b) $\int R(x)dx = 0$
 - c) $R(x) = 0$
 - d) $\int R^2(x)dx = 0$
- 2) A measure of distortion of a element is _____.
 - a) Bandwidth
 - b) Damping ratio
 - c) Aspect ratio
 - d) Shape function
- 3) A problem which is not a function of a time _____.
 - a) Eigenvalue problem
 - b) Steady state problem
 - c) Transient problem
 - d) Propagation problem
- 4) The three most common cases on non-linearity are _____.
 - a) Fluttering, Geometric, Material
 - b) Material, Geometric, Contact
 - c) Material, Fluttering, plasticity
 - d) Creep, Fluttering, Contact
- 5) Shape function is usually _____.
 - a) The coefficient that appears in the interpolation polynomial
 - b) Written for each individual node of finite element
 - c) Interchanged with the terminology interpolation polynomial
 - d) All of the above
- 6) If element size is reduced, number of elements _____.
 - a) increases
 - b) decreases
 - c) remains constant
 - d) gets deleted
- 7) The loading, constraints and other external effects applied to a model is _____.
 - a) Boundary conditions
 - b) Meshing
 - c) Constraining
 - d) Modeling
- 8) Preprocessing means _____.
 - a) Solving
 - b) Meshing
 - c) Result analysis
 - d) None of the above

- 9) Sum of all the natural coordinates of the node is _____.
a) One
b) Zero
c) Can not be predicted
d) none of the above
- 10) The interpolation function for a CST element is given by _____.
a) $U = a_1 + a_2x + a_3y$
b) $U = a_1 + a_2x + a_3x^2$
c) $U = a_1 + a_2x + a_3x^2 + a_4y$
d) $U = a_1 + a_2x + a_3y + a_4z$
- 11) Complex elements are defined as those elements which _____.
a) have higher order interpolation polynomials
b) have sides parallel to coordinate system
c) have sides parallel to coordinate system and use higher order interpolation polynomials
d) have polynomials with only linear and constant terms
- 12) Each node of beam element is having following degree of freedom _____.
a) 3
b) 4
c) 2
d) 1
- 13) In _____ element the value of field variable remains unchanged in the circumferential direction.
a) 1D and 2D
b) Beam
c) Truss
d) Axisymmetric
- 14) Size of shape function matrix of 2D element having 3 nodes is _____.
a) 2×6
b) 3×3
c) 4×6
d) 2×5

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

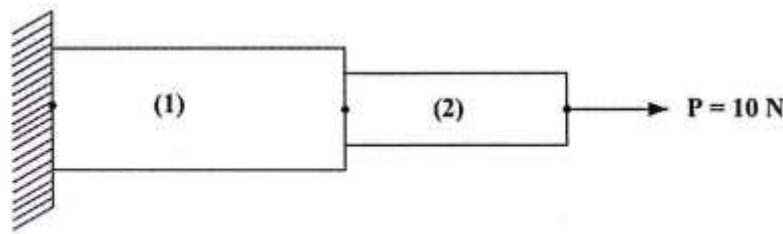


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

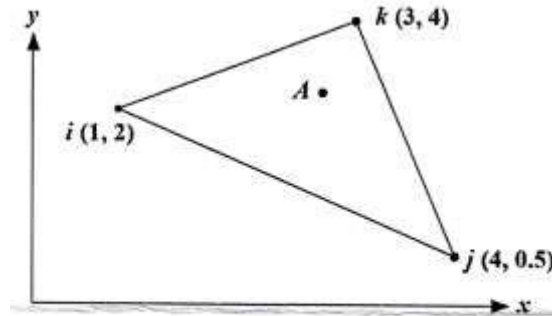


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

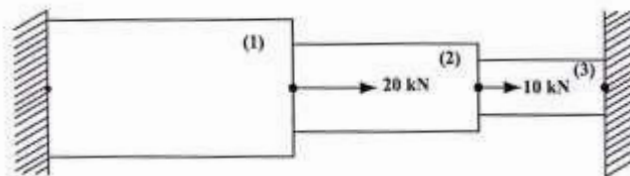


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of non-programmable scientific calculator is allowed.
 5) Assume suitable data if necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) The interpolation function for a CST element is given by _____.
 - a) $U = a_1 + a_2x + a_3y$
 - b) $U = a_1 + a_2x + a_3x^2$
 - c) $U = a_1 + a_2x + a_3x^2 + a_4y$
 - d) $U = a_1 + a_2x + a_3y + a_4z$
- 2) Complex elements are defined as those elements which _____.
 - a) have higher order interpolation polynomials
 - b) have sides parallel to coordinate system
 - c) have sides parallel to coordinate system and use higher order interpolation polynomials
 - d) have polynomials with only linear and constant terms
- 3) Each node of beam element is having following degree of freedom _____.
 - a) 3
 - b) 4
 - c) 2
 - d) 1
- 4) In _____ element the value of field variable remains unchanged in the circumferential direction.
 - a) 1D and 2D
 - b) Beam
 - c) Truss
 - d) Axisymmetric
- 5) Size of shape function matrix of 2D element having 3 nodes is _____.
 - a) 2×6
 - b) 3×3
 - c) 4×6
 - d) 2×5
- 6) Formula for Galerkin method is _____.
 - a) $\int f(x)R(x)dx = 0$
 - b) $\int R(x)dx = 0$
 - c) $R(x) = 0$
 - d) $\int R^2(x)dx = 0$
- 7) A measure of distortion of a element is _____.
 - a) Bandwidth
 - b) Damping ratio
 - c) Aspect ratio
 - d) Shape function

- 8) A problem which is not a function of a time _____.
a) Eigenvalue problem b) Steady state problem
c) Transient problem d) Propagation problem
- 9) The three most common cases on non-linearity are _____.
a) Fluttering, Geometric, Material b) Material, Geometric, Contact
c) Material, Fluttering, plasticity d) Creep, Fluttering, Contact
- 10) Shape function is usually _____.
a) The coefficient that appears in the interpolation polynomial
b) Written for each individual node of finite element
c) Interchanged with the terminology interpolation polynomial
d) All of the above
- 11) If element size is reduced, number of elements _____.
a) increases b) decreases
c) remains constant d) gets deleted
- 12) The loading, constraints and other external effects applied to a model is _____.
a) Boundary conditions b) Meshing
c) Constraining d) Modeling
- 13) Preprocessing means _____.
a) Solving b) Meshing
c) Result analysis d) None of the above
- 14) Sum of all the natural coordinates of the node is _____.
a) One b) Zero
c) Can not be predicted d) none of the above

Seat
No.

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Finite Element Method (197041709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from Section I and Section II.
 2) Figures to right indicate full marks.
 3) Use of non-programmable scientific calculator is allowed.
 4) Assume suitable data if necessary and mention it clearly.

Section – I

- Q.2 a)** Obtain solution of differential equation by using Galerkin's method. **07**

$$\frac{\partial^2 u}{\partial x^2} + u - x^2 = 0, \quad 0 \leq x \leq 1$$

Take boundary conditions as $u(0) = 0, \frac{du}{dx}(1) = 1$

- b)** Explain Simplex, Complex and Multiplex elements. **07**

- Q.3 a)** Find nodal displacement in stepped bar as shown in figure 1. **07**

Take $A_1 = 20 \text{ mm}^2, A_2 = 10 \text{ mm}^2$

$L_1 = L_2 = 100 \text{ mm}, E_1 = E_2 = 200 \times 10^3 \text{ MPa}$

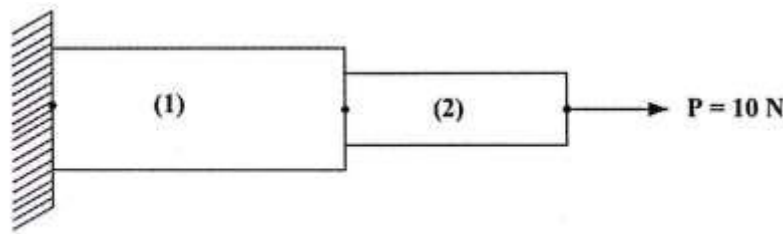


Figure 1:

- b)** Explain discretization in FEM with suitable example and also brief p-refinement and h-refinement. **07**

Q.4 Attempt the following.

- a)** Prove from first principle that the displacement through 1-D pin jointed bar element with linear variation of displacement can be expressed as **06**

$u = N_i u_i + N_j u_j$ where $N_i = \frac{(x_j - x)}{L}, N_j = \frac{(x - x_i)}{L}$. Plot shape functions at node i and j

- b)** What are the properties of Stiffness matrix? Explain. **04**
c) Write a note interpolation functions. **04**

Section – II

- Q.5 a)** Calculate the value of field variable at the point $A(2.5, 2.5)$, which is located inside the triangle as shown in figure 2. **07**
 The nodal values for field variable are $U_i = 3.5, U_j = 2.2$ and $U_k = 4.4$

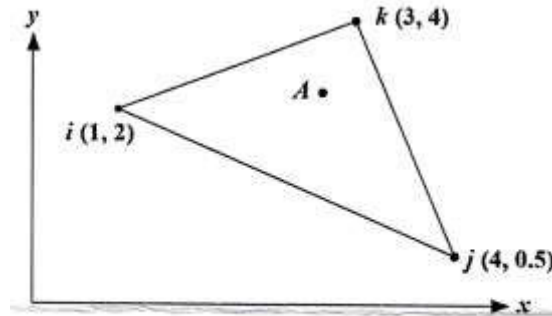


Figure 2:

- b)** Explain static analysis and modal analysis. **07**
- Q.6 a)** Solve the following problem for all unknowns. Impose the boundary conditions using the penalty method. Refer figure 3. **12**
 $A_1 = 900 \text{ mm}^2, A_2 = 400 \text{ mm}^2, A_3 = 200 \text{ mm}^2$
 $L_1 = 80 \text{ mm}, L_2 = 80 \text{ mm}, L_3 = 70 \text{ mm}$
 $E_1 = 70 \text{ GPa}, E_2 = 105 \text{ GPa}, E_3 = 200 \text{ GPa}$

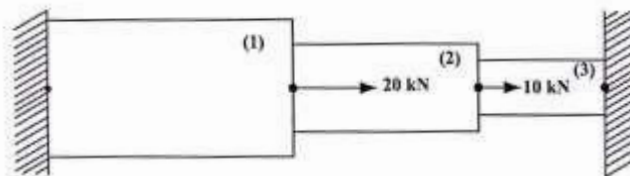


Figure 3:

- b)** What are isoperimetric elements? **02**
- Q.7 Write a short note on (Any Three)** **14**
- Dynamic problems
 - Size and number of elements
 - Harmonic analysis
 - Axisymmetric problems and axisymmetric elements

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of scientific calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which signals are used in shunting operations for low-speed movement?
 - a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal
- 2) Weight of the passenger is categorized in _____.
 - a) sprung mass
 - b) unsprung mass
 - c) non-sprung mass
 - d) dummy mass
- 3) _____ is not a coupling used in Railway Coaches.
 - a) Screw Coupling
 - b) Side buffer coupling
 - c) Central buffer coupling
 - d) Tie coupling
- 4) Which of the following is an advantage of electric traction over other methods of traction?
 - a) Faster acceleration
 - b) No pollution problems
 - c) Better braking action
 - d) All of the above
- 5) _____ is not a part of VCC used in A/C.
 - a) Evaporator
 - b) Condenser
 - c) Compressor
 - d) Deflector
- 6) In railway the green light indicates _____.
 - a) Stop
 - b) Proceed
 - c) Proceed cautiously
 - d) None
- 7) For Fiat Bogie Break disc diameter is _____ mm.
 - a) 750
 - b) 650
 - c) 635
 - d) 640
- 8) Which of the following can be used in case of Bridge joints?
 - a) Metal flat or Bridge plate
 - b) Extra sleepers
 - c) Metal flat
 - d) Bridge plate
- 9) _____ is not a maintenance report that is recorded in Loco shade.
 - a) Loco master defect report
 - b) Component defect report
 - c) Analysis defect report
 - d) Component inspection report

- 10) _____ is not a cause of accident in Indian Railway.
- a) Negligence
 - b) Human error
 - c) Reckless pedestrians and drivers
 - d) Electrification
- 11) _____ works as primary energy absorber during accidental shock.
- a) Honeycomb absorber
 - b) Pads
 - c) Spring
 - d) None of these
- 12) _____ is not strategy of fire accidents.
- a) Prevention
 - b) Detection
 - c) Suppression
 - d) Speed
- 13) In DFC track inspection is done by _____.
- a) TRC
 - b) BFC
 - c) NFC
 - d) LFC
- 14) FOIS Means _____.
- a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.
4) Use of scientific calculator is allowed.

Section – I

- Q.2 Solve:**
- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
 - b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
 - c) Explain in details the different parts of C.B.C coupler. **05**
- Q.3 Solve:**
- a) Write the steps of heating load calculation in 2.A.C coach. **04**
 - b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
 - c) Write the constructional details of Traction Motors used in Indian Railway. **05**
- Q.4 Solve:**
- a) Describe all Parts of LHB Bogies in Railway. **04**
 - b) Write a short note R.M.P.U in LHB coaches. **05**
 - c) Explain in details of HOG. **05**

Section – II

- Q.5 Solve:**
- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
 - b) Write Short note on types of pollution in Indian railway. **05**
 - c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**
- Q.6 Solve:**
- a) Which digital technologies used in traffic control? Explain RFID in details. **05**
 - b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
 - c) Describe in details the Green Initiatives in Indian railway sectors. **04**
- Q.7 Solve:**
- a) Write in details the Ticket reservation system in Indian Railway. **04**
 - b) What is mean by rolling stock management? Which types of rolling stock management used in Indian railway? **05**
 - c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of scientific calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which of the following can be used in case of Bridge joints?
 - a) Metal flat or Bridge plate
 - b) Extra sleepers
 - c) Metal flat
 - d) Bridge plate
- 2) _____ is not a maintenance report that is recorded in Loco shade.
 - a) Loco master defect report
 - b) Component defect report
 - c) Analysis defect report
 - d) Component inspection report
- 3) _____ is not a cause of accident in Indian Railway.
 - a) Negligence
 - b) Human error
 - c) Reckless pedestrians and drivers
 - d) Electrification
- 4) _____ works as primary energy absorber during accidental shock.
 - a) Honeycomb absorber
 - b) Pads
 - c) Spring
 - d) None of these
- 5) _____ is not strategy of fire accidents.
 - a) Prevention
 - b) Detection
 - c) Suppression
 - d) Speed
- 6) In DFC track inspection is done by _____.
 - a) TRC
 - b) BFC
 - c) NFC
 - d) LFC
- 7) FOIS Means _____.
 - a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these
- 8) Which signals are used in shunting operations for low-speed movement?
 - a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.
4) Use of scientific calculator is allowed.

Section – I

- Q.2 Solve:**
- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
 - b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
 - c) Explain in details the different parts of C.B.C coupler. **05**
- Q.3 Solve:**
- a) Write the steps of heating load calculation in 2.A.C coach. **04**
 - b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
 - c) Write the constructional details of Traction Motors used in Indian Railway. **05**
- Q.4 Solve:**
- a) Describe all Parts of LHB Bogies in Railway. **04**
 - b) Write a short note R.M.P.U in LHB coaches. **05**
 - c) Explain in details of HOG. **05**

Section – II

- Q.5 Solve:**
- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
 - b) Write Short note on types of pollution in Indian railway. **05**
 - c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**
- Q.6 Solve:**
- a) Which digital technologies used in traffic control? Explain RFID in details. **05**
 - b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
 - c) Describe in details the Green Initiatives in Indian railway sectors. **04**
- Q.7 Solve:**
- a) Write in details the Ticket reservation system in Indian Railway. **04**
 - b) What is mean by rolling stock management? Which types of rolling stock management used in Indian railway? **05**
 - c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Use of scientific calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) _____ works as primary energy absorber during accidental shock.
 - a) Honeycomb absorber
 - b) Pads
 - c) Spring
 - d) None of these
- 2) _____ is not strategy of fire accidents.
 - a) Prevention
 - b) Detection
 - c) Suppression
 - d) Speed
- 3) In DFC track inspection is done by _____.
 - a) TRC
 - b) BFC
 - c) NFC
 - d) LFC
- 4) FOIS Means _____.
 - a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these
- 5) Which signals are used in shunting operations for low-speed movement?
 - a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal
- 6) Weight of the passenger is categorized in _____.
 - a) sprung mass
 - b) unsprung mass
 - c) non-sprung mass
 - d) dummy mass
- 7) _____ is not a coupling used in Railway Coaches.
 - a) Screw Coupling
 - b) Side buffer coupling
 - c) Central buffer coupling
 - d) Tie coupling
- 8) Which of the following is an advantage of electric traction over other methods of traction?
 - a) Faster acceleration
 - b) No pollution problems
 - c) Better braking action
 - d) All of the above

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.
4) Use of scientific calculator is allowed.

Section – I

- Q.2 Solve:**
- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
 - b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
 - c) Explain in details the different parts of C.B.C coupler. **05**
- Q.3 Solve:**
- a) Write the steps of heating load calculation in 2.A.C coach. **04**
 - b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
 - c) Write the constructional details of Traction Motors used in Indian Railway. **05**
- Q.4 Solve:**
- a) Describe all Parts of LHB Bogies in Railway. **04**
 - b) Write a short note R.M.P.U in LHB coaches. **05**
 - c) Explain in details of HOG. **05**

Section – II

- Q.5 Solve:**
- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
 - b) Write Short note on types of pollution in Indian railway. **05**
 - c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**
- Q.6 Solve:**
- a) Which digital technologies used in traffic control? Explain RFID in details. **05**
 - b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
 - c) Describe in details the Green Initiatives in Indian railway sectors. **04**
- Q.7 Solve:**
- a) Write in details the Ticket reservation system in Indian Railway. **04**
 - b) What is mean by rolling stock management? Which types of rolling stock management used in Indian railway? **05**
 - c) Explain in details Human waste management used in Indian railway. **05**

- 9) FOIS Means _____.
- a) Freight Operations Information Society
 - b) Freight Operations Internet System
 - c) Freight Operations Information System
 - d) None of these
- 10) Which signals are used in shunting operations for low-speed movement?
- a) Semaphore Signal
 - b) Warner Signal
 - c) Starter signal
 - d) Disc signal
- 11) Weight of the passenger is categorized in _____.
- a) sprung mass
 - b) unsprung mass
 - c) non-sprung mass
 - d) dummy mass
- 12) _____ is not a coupling used in Railway Coaches.
- a) Screw Coupling
 - b) Side buffer coupling
 - c) Central buffer coupling
 - d) Tie coupling
- 13) Which of the following is an advantage of electric traction over other methods of traction?
- a) Faster acceleration
 - b) No pollution problems
 - c) Better braking action
 - d) All of the above
- 14) _____ is not a part of VCC used in A/C.
- a) Evaporator
 - b) Condenser
 - c) Compressor
 - d) Deflector

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Railway Systems Management (197041711)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from each section.
2) Figures to right indicate full marks.
3) Assume suitable data if required.
4) Use of scientific calculator is allowed.

Section – I

- Q.2 Solve:**
- a) What are the components of air suspension in the Indian Railway? **04**
Elaborate in details.
- b) Draw typical passenger Vehicle showing the layout of air conditioning & heating equipment. **05**
- c) Explain in details the different parts of C.B.C coupler. **05**
- Q.3 Solve:**
- a) Write the steps of heating load calculation in 2.A.C coach. **04**
- b) Explain with neat Sketches the Electronic power and Auxiliary Services. **05**
- c) Write the constructional details of Traction Motors used in Indian Railway. **05**
- Q.4 Solve:**
- a) Describe all Parts of LHB Bogies in Railway. **04**
- b) Write a short note R.M.P.U in LHB coaches. **05**
- c) Explain in details of HOG. **05**

Section – II

- Q.5 Solve:**
- a) What are different components of Bio-Vacuum toilet system explain in detail. **04**
- b) Write Short note on types of pollution in Indian railway. **05**
- c) What is role of production engineers in rolling stock maintenance? Describe in details. **05**
- Q.6 Solve:**
- a) Which digital technologies used in traffic control? Explain RFID in details. **05**
- b) What is mean by overhauling? Explain in details overhauling & periodic overhauling in diesel Locomotives. **05**
- c) Describe in details the Green Initiatives in Indian railway sectors. **04**
- Q.7 Solve:**
- a) Write in details the Ticket reservation system in Indian Railway. **04**
- b) What is mean by rolling stock management? Which types of rolling stock management used in Indian railway? **05**
- c) Explain in details Human waste management used in Indian railway. **05**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The term Entrepreneur is derived from the _____ word.

a) English	b) Tamil
c) Hindi	d) French
- 2) Which of the following is the reason for business failure _____?

a) Lack of market research	b) Poor financial control
c) Poor management	d) All the above
- 3) To provide financial assistance to entrepreneurs the government has set up a number of _____.

a) financial advisors	b) financial intermediaries
c) industrial estates	d) financial institutions
- 4) _____ is the first development bank of the country.

a) ICICI	b) IDBI
c) SFC	d) IFCI
- 5) SIDBI was set up as a subsidiary of _____.

a) IDBI	b) IFCI
c) ICICI	d) SFC
- 6) Which of these is not a type of entrepreneurship?
| |
| --- |
| a) Small business entrepreneurship |
| b) Scalable entrepreneurship |
| c) Large scale entrepreneurship |
| d) Intrapreneurship |
- 7) Which of these actions of an entrepreneur will most likely result in creative destruction?
| |
| --- |
| a) Developing a new product |
| b) Taking over a competitor's business |
| c) Issuing shares to individuals and institutions |
| d) Lowering prices of your product or service |

- 8) To provide financial assistance to entrepreneurs the government has set up a number of _____.
- a) financial advisors
 - b) financial intermediaries
 - c) industrial estates
 - d) financial institutions
- 9) District industries Centers are located?
- a) in each district
 - b) in each state
 - c) only in selected districts
 - d) only in selected states
- 10) Business plan is an important _____ for an entrepreneur.
- a) Tool
 - b) Document
 - c) Vision
 - d) Mission
- 11) Entrepreneurship Development Program is helpful for: _____.
- a) First-generation entrepreneurs
 - b) Future generation entrepreneurs
 - c) Existing Entrepreneurs
 - d) None of the above
- 12) If an entrepreneur takes decisions on behalf of their enterprise, it is known as _____.
- a) Routine decisions
 - b) Strategic decisions
 - c) Organisational decisions
 - d) Personal decisions
- 13) What is the purpose of a feasibility study for starting a new venture?
- a) Exploring for potential customers
 - b) Estimate sales
 - c) To understand if there are any barriers to success
 - d) None of the above
- 14) An entrepreneur who is the owner of more than one business is called: _____.
- a) Portfolio Entrepreneur
 - b) Intrapreneur
 - c) Corporate Entrepreneur
 - d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from the both sections.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

- Q.2** a) Elaborate the importance and significance of growth of entrepreneurial activity. **07**
b) Classify the entrepreneur in details. **07**
- Q.3** a) Explain in details the qualities and characteristics of entrepreneur. **07**
b) Explain Objectives of Entrepreneurship Development Programme. **07**
- Q.4** a) Explain in details importance of Role of EDP in economic development of country. **07**
b) Explain the problems faced by entrepreneur in detail. **07**

Section – II

- Q.5** a) Brief the contents of project report and its significances. **07**
b) Write a short note on “Lean canvas model”. **07**
- Q.6** a) Define SMEs. Explain the various characteristics of SMEs. **07**
b) Elaborate various business plans. **07**
- Q.7** a) Elaborate the various funding option available to entrepreneur and their support systems. **07**
b) Explain various ownership patterns. **07**

- 9) Which of the following is the reason for business failure _____?
- a) Lack of market research
 - b) Poor financial control
 - c) Poor management
 - d) All the above
- 10) To provide financial assistance to entrepreneurs the government has set up a number of _____.
- a) financial advisors
 - b) financial intermediaries
 - c) industrial estates
 - d) financial institutions
- 11) _____ is the first development bank of the country.
- a) ICICI
 - b) IDBI
 - c) SFC
 - d) IFCI
- 12) SIDBI was set up as a subsidiary of _____.
- a) IDBI
 - b) IFCI
 - c) ICICI
 - d) SFC
- 13) Which of these is not a type of entrepreneurship?
- a) Small business entrepreneurship
 - b) Scalable entrepreneurship
 - c) Large scale entrepreneurship
 - d) Intrapreneurship
- 14) Which of these actions of an entrepreneur will most likely result in creative destruction?
- a) Developing a new product
 - b) Taking over a competitor's business
 - c) Issuing shares to individuals and institutions
 - d) Lowering prices of your product or service

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from the both sections.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

- | | | |
|------------|--------------------------------------------------------------------------------------------|-----------|
| Q.2 | a) Elaborate the importance and significance of growth of entrepreneurial activity. | 07 |
| | b) Classify the entrepreneur in details. | 07 |
| Q.3 | a) Explain in details the qualities and characteristics of entrepreneur. | 07 |
| | b) Explain Objectives of Entrepreneurship Development Programme. | 07 |
| Q.4 | a) Explain in details importance of Role of EDP in economic development of country. | 07 |
| | b) Explain the problems faced by entrepreneur in detail. | 07 |

Section – II

- | | | |
|------------|-----------------------------------------------------------------------------------------------------|-----------|
| Q.5 | a) Brief the contents of project report and its significances. | 07 |
| | b) Write a short note on “Lean canvas model”. | 07 |
| Q.6 | a) Define SMEs. Explain the various characteristics of SMEs. | 07 |
| | b) Elaborate various business plans. | 07 |
| Q.7 | a) Elaborate the various funding option available to entrepreneur and their support systems. | 07 |
| | b) Explain various ownership patterns. | 07 |

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Entrepreneurship Development Program is helpful for: _____.
 a) First-generation entrepreneurs b) Future generation entrepreneurs
 c) Existing Entrepreneurs d) None of the above
- 2) If an entrepreneur takes decisions on behalf of their enterprise, it is known as _____.
 a) Routine decisions b) Strategic decisions
 c) Organisational decisions d) Personal decisions
- 3) What is the purpose of a feasibility study for starting a new venture?
 a) Exploring for potential customers
 b) Estimate sales
 c) To understand if there are any barriers to success
 d) None of the above
- 4) An entrepreneur who is the owner of more than one business is called: _____.
 a) Portfolio Entrepreneur b) Intrapreneur
 c) Corporate Entrepreneur d) None of the above
- 5) The term Entrepreneur is derived from the _____ word.
 a) English b) Tamil
 c) Hindi d) French
- 6) Which of the following is the reason for business failure _____?
 a) Lack of market research b) Poor financial control
 c) Poor management d) All the above
- 7) To provide financial assistance to entrepreneurs the government has set up a number of _____.
 a) financial advisors b) financial intermediaries
 c) industrial estates d) financial institutions
- 8) _____ is the first development bank of the country.
 a) ICICI b) IDBI
 c) SFC d) IFCI

- 9) SIDBI was set up as a subsidiary of _____.
- | | |
|----------|---------|
| a) IDBI | b) IFCI |
| c) ICICI | d) SFC |
- 10) Which of these is not a type of entrepreneurship?
- a) Small business entrepreneurship
 - b) Scalable entrepreneurship
 - c) Large scale entrepreneurship
 - d) Intrapreneurship
- 11) Which of these actions of an entrepreneur will most likely result in creative destruction?
- a) Developing a new product
 - b) Taking over a competitor's business
 - c) Issuing shares to individuals and institutions
 - d) Lowering prices of your product or service
- 12) To provide financial assistance to entrepreneurs the government has set up a number of _____.
- | | |
|-----------------------|-----------------------------|
| a) financial advisors | b) financial intermediaries |
| c) industrial estates | d) financial institutions |
- 13) District industries Centers are located?
- | | |
|-------------------------------|----------------------------|
| a) in each district | b) in each state |
| c) only in selected districts | d) only in selected states |
- 14) Business plan is an important _____ for an entrepreneur.
- | | |
|-----------|-------------|
| a) Tool | b) Document |
| c) Vision | d) Mission |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from the both sections.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

- Q.2** a) Elaborate the importance and significance of growth of entrepreneurial activity. **07**
b) Classify the entrepreneur in details. **07**
- Q.3** a) Explain in details the qualities and characteristics of entrepreneur. **07**
b) Explain Objectives of Entrepreneurship Development Programme. **07**
- Q.4** a) Explain in details importance of Role of EDP in economic development of country. **07**
b) Explain the problems faced by entrepreneur in detail. **07**

Section – II

- Q.5** a) Brief the contents of project report and its significances. **07**
b) Write a short note on “Lean canvas model”. **07**
- Q.6** a) Define SMEs. Explain the various characteristics of SMEs. **07**
b) Elaborate various business plans. **07**
- Q.7** a) Elaborate the various funding option available to entrepreneur and their support systems. **07**
b) Explain various ownership patterns. **07**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions, if required and state them clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of these is not a type of entrepreneurship?
 - a) Small business entrepreneurship
 - b) Scalable entrepreneurship
 - c) Large scale entrepreneurship
 - d) Intrapreneurship
- 2) Which of these actions of an entrepreneur will most likely result in creative destruction?
 - a) Developing a new product
 - b) Taking over a competitor's business
 - c) Issuing shares to individuals and institutions
 - d) Lowering prices of your product or service
- 3) To provide financial assistance to entrepreneurs the government has set up a number of _____.

a) financial advisors	b) financial intermediaries
c) industrial estates	d) financial institutions
- 4) District industries Centers are located?

a) in each district	b) in each state
c) only in selected districts	d) only in selected states
- 5) Business plan is an important _____ for an entrepreneur.

a) Tool	b) Document
c) Vision	d) Mission
- 6) Entrepreneurship Development Program is helpful for: _____.

a) First-generation entrepreneurs	b) Future generation entrepreneurs
c) Existing Entrepreneurs	d) None of the above
- 7) If an entrepreneur takes decisions on behalf of their enterprise, it is known as _____.

a) Routine decisions	b) Strategic decisions
c) Organisational decisions	d) Personal decisions

- 8) What is the purpose of a feasibility study for starting a new venture?
a) Exploring for potential customers
b) Estimate sales
c) To understand if there are any barriers to success
d) None of the above
- 9) An entrepreneur who is the owner of more than one business is called: _____.
a) Portfolio Entrepreneur b) Intrapreneur
c) Corporate Entrepreneur d) None of the above
- 10) The term Entrepreneur is derived from the _____ word.
a) English b) Tamil
c) Hindi d) French
- 11) Which of the following is the reason for business failure _____?
a) Lack of market research b) Poor financial control
c) Poor management d) All the above
- 12) To provide financial assistance to entrepreneurs the government has set up a number of _____.
a) financial advisors b) financial intermediaries
c) industrial estates d) financial institutions
- 13) _____ is the first development bank of the country.
a) ICICI b) IDBI
c) SFC d) IFCI
- 14) SIDBI was set up as a subsidiary of _____.
a) IDBI b) IFCI
c) ICICI d) SFC

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Entrepreneurship Development (197041713)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two questions from the both sections.
2) Figures to the right indicate full marks.
3) Make suitable assumptions, if required and state them clearly.

Section – I

- Q.2** a) Elaborate the importance and significance of growth of entrepreneurial activity. **07**
b) Classify the entrepreneur in details. **07**
- Q.3** a) Explain in details the qualities and characteristics of entrepreneur. **07**
b) Explain Objectives of Entrepreneurship Development Programme. **07**
- Q.4** a) Explain in details importance of Role of EDP in economic development of country. **07**
b) Explain the problems faced by entrepreneur in detail. **07**

Section – II

- Q.5** a) Brief the contents of project report and its significances. **07**
b) Write a short note on “Lean canvas model”. **07**
- Q.6** a) Define SMEs. Explain the various characteristics of SMEs. **07**
b) Elaborate various business plans. **07**
- Q.7** a) Elaborate the various funding option available to entrepreneur and their support systems. **07**
b) Explain various ownership patterns. **07**

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) Branding of product _____.
 - a) makes it more saleable
 - b) differentiates it from other products in the market
 - c) make it more attractive for customer
 - d) gives customer rebate on MRP.
- 2) When two separate companies or two divisions within the same company agree to place both of their respective brands on a particular product or enterprise, this arrangement is termed as: _____.
 - a) Differential Branding
 - b) Cobranding
 - c) Dual Branding
 - d) Both Cobranding and Dual Branding
- 3) As the product passes through different stages of a product life cycle, the product variety _____.
 - a) increases
 - b) decreases and then increases
 - c) remains the same
 - d) decreases
- 4) When a new product arrives in the market with higher quality, higher value and new features better than its competitors. Such products are known as _____.
 - a) Superior products
 - b) Develop superior products
 - c) Unique superior products
 - d) New products
- 5) Which of the following is not a characteristic of "Market Introduction Stage" in PLC?
 - a) Demands has to be created
 - b) Costs are low
 - c) Makes no money at this stage
 - d) Slow sales volume to start
 - e) There is little or no competition

- 6) The most important performance dimension for product development project is
- a) Time required to market the product
 - b) Time to target Customer
 - c) Time to advertise and reach consumer
 - d) Time required by seller
- 7) What does the term PLC stands for?
- a) Product life cycle
 - b) Production life cycle
 - c) Product long cycle
 - d) Production long cycle
- 8) In which of the following stages of product life cycle a company reduces sales promotion to take advantage of heavy consumer demand?
- a) Introduction
 - b) Growth
 - c) Maturity
 - d) Decline
- 9) Increased competition leads to price decrease, increasing public awareness, sales volume increase significantly are the characteristics of _____ in PLC.
- a) Mature stage
 - b) Decline stage
 - c) Growth stage
 - d) Market introduction stage
- 10) _____ includes review of sales, profit projections and cost for a new product, to find out whether it satisfied the company objective or not.
- a) Product Development
 - b) Business Analysis
 - c) Marketing Strategy
 - d) Test Marketing
- 11) The term DFA stands for: _____.
- a) Design for Management and Administration
 - b) Design for Manufacturing and Administration
 - c) Design for Assembly
 - d) Design for Management and Assembly
- 12) What does the term PDM stands for?
- a) Product Data Management
 - b) Product Database Management
 - c) Product Drawing and Manufacturing
 - d) Production Data Manufacturing
- 13) The activities of designing and producing a Packaging Container for a product are known as: _____.
- a) Purchase-sale
 - b) Presentation
 - c) Promotion
 - d) Packaging
- 14) Color and size of the product, brand and packaging are considered as _____.
- a) Chemical features of product
 - b) Physical features of product
 - c) Product designing
 - d) Product manufacture

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.

Section – I

- | | | | |
|------------|-----------|---------------------------------------------------------------|-----------|
| Q.2 | a) | Define PLM. List and Explain different phases in PLM. | 07 |
| | b) | What is the difference between PLM and ERP? | 07 |
| Q.3 | a) | Explain PLM Significance and Scope of PLM. | 07 |
| | b) | How PLM can be operational framework of CIM? | 07 |
| Q.4 | a) | What is Industry 4.0? List Benefits of Digital Manufacturing. | 07 |
| | b) | What is the Necessity of PLM in Manufacturing Sector? | 07 |

Section – II

- | | | | |
|------------|---------------------------------------|-------------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain PLCM system, system architecture, information models and product structure. | 07 |
| | b) | Role of information model and data model. Explain. | 07 |
| Q.6 | a) | Explain the PLM Strategy, Principles for PLM strategy. | 07 |
| | b) | Explain Sources of Problem in Product Data. | 07 |
| Q.7 | Write Short note on (Any Four) | | 14 |
| | a) | Product Structure | |
| | b) | Benefits of PLM | |
| | c) | Need of Product Database Management PDM | |
| | d) | Engineering Database Management (EDM) | |
| | e) | Stages in NPD (New Product Development) | |
| | f) | PLM as Business Strategy | |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative. 14

- 1) In which of the following stages of product life cycle a company reduces sales promotion to take advantage of heavy consumer demand?
 - a) Introduction
 - b) Growth
 - c) Maturity
 - d) Decline
- 2) Increased competition leads to price decrease, increasing public awareness, sales volume increase significantly are the characteristics of _____ in PLC.
 - a) Mature stage
 - b) Decline stage
 - c) Growth stage
 - d) Market introduction stage
- 3) _____ includes review of sales, profit projections and cost for a new product, to find out whether it satisfied the company objective or not.
 - a) Product Development
 - b) Business Analysis
 - c) Marketing Strategy
 - d) Test Marketing
- 4) The term DFA stands for: _____.
 - a) Design for Management and Administration
 - b) Design for Manufacturing and Administration
 - c) Design for Assembly
 - d) Design for Management and Assembly
- 5) What does the term PDM stands for?
 - a) Product Data Management
 - b) Product Database Management
 - c) Product Drawing and Manufacturing
 - d) Production Data Manufacturing
- 6) The activities of designing and producing a Packaging Container for a product are known as: _____.
 - a) Purchase-sale
 - b) Presentation
 - c) Promotion
 - d) Packaging
- 7) Color and size of the product, brand and packaging are considered as _____.
 - a) Chemical features of product
 - b) Physical features of product
 - c) Product designing
 - d) Product manufacture

- 8) Branding of product _____.
a) makes it more saleable
b) differentiates it from other products in the market
c) make it more attractive for customer
d) gives customer rebate on MRP.
- 9) When two separate companies or two divisions within the same company agree to place both of their respective brands on a particular product or enterprise, this arrangement is termed as: _____.
a) Differential Branding
b) Cobranding
c) Dual Branding
d) Both Cobranding and Dual Branding
- 10) As the product passes through different stages of a product life cycle, the product variety _____.
a) increases
b) decreases and then increases
c) remains the same
d) decreases
- 11) When a new product arrives in the market with higher quality, higher value and new features better than its competitors. Such products are known as _____.
a) Superior products
b) Develop superior products
c) Unique superior products
d) New products
- 12) Which of the following is not a characteristic of "Market Introduction Stage" in PLC?
a) Demands has to be created
b) Costs are low
c) Makes no money at this stage
d) Slow sales volume to start
e) There is little or no competition
- 13) The most important performance dimension for product development project is
a) Time required to market the product
b) Time to target Customer
c) Time to advertise and reach consumer
d) Time required by seller
- 14) What does the term PLC stands for?
a) Product life cycle
b) Production life cycle
c) Product long cycle
d) Production long cycle

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.

Section – I

- | | | | |
|------------|-----------|---------------------------------------------------------------|-----------|
| Q.2 | a) | Define PLM. List and Explain different phases in PLM. | 07 |
| | b) | What is the difference between PLM and ERP? | 07 |
| Q.3 | a) | Explain PLM Significance and Scope of PLM. | 07 |
| | b) | How PLM can be operational framework of CIM? | 07 |
| Q.4 | a) | What is Industry 4.0? List Benefits of Digital Manufacturing. | 07 |
| | b) | What is the Necessity of PLM in Manufacturing Sector? | 07 |

Section – II

- | | | | |
|------------|---------------------------------------|-------------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain PLCM system, system architecture, information models and product structure. | 07 |
| | b) | Role of information model and data model. Explain. | 07 |
| Q.6 | a) | Explain the PLM Strategy, Principles for PLM strategy. | 07 |
| | b) | Explain Sources of Problem in Product Data. | 07 |
| Q.7 | Write Short note on (Any Four) | | 14 |
| | a) | Product Structure | |
| | b) | Benefits of PLM | |
| | c) | Need of Product Database Management PDM | |
| | d) | Engineering Database Management (EDM) | |
| | e) | Stages in NPD (New Product Development) | |
| | f) | PLM as Business Strategy | |

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative.

14

- 1) The term DFA stands for: _____.
 - a) Design for Management and Administration
 - b) Design for Manufacturing and Administration
 - c) Design for Assembly
 - d) Design for Management and Assembly
- 2) What does the term PDM stands for?
 - a) Product Data Management
 - b) Product Database Management
 - c) Product Drawing and Manufacturing
 - d) Production Data Manufacturing
- 3) The activities of designing and producing a Packaging Container for a product are known as: _____.

a) Purchase-sale	b) Presentation
c) Promotion	d) Packaging
- 4) Color and size of the product, brand and packaging are considered as _____.

a) Chemical features of product	b) Physical features of product
c) Product designing	d) Product manufacture
- 5) Branding of product _____.
 - a) makes it more saleable
 - b) differentiates it from other products in the market
 - c) make it more attractive for customer
 - d) gives customer rebate on MRP.
- 6) When two separate companies or two divisions within the same company agree to place both of their respective brands on a particular product or enterprise, this arrangement is termed as: _____.
 - a) Differential Branding
 - b) Cobranding
 - c) Dual Branding
 - d) Both Cobranding and Dual Branding

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
 2) Figures to the right indicate full marks.

Section – I

- | | | | |
|------------|----|---------------------------------------------------------------|-----------|
| Q.2 | a) | Define PLM. List and Explain different phases in PLM. | 07 |
| | b) | What is the difference between PLM and ERP? | 07 |
| Q.3 | a) | Explain PLM Significance and Scope of PLM. | 07 |
| | b) | How PLM can be operational framework of CIM? | 07 |
| Q.4 | a) | What is Industry 4.0? List Benefits of Digital Manufacturing. | 07 |
| | b) | What is the Necessity of PLM in Manufacturing Sector? | 07 |

Section – II

- | | | | |
|------------|---------------------------------------|-------------------------------------------------------------------------------------|-----------|
| Q.5 | a) | Explain PLCM system, system architecture, information models and product structure. | 07 |
| | b) | Role of information model and data model. Explain. | 07 |
| Q.6 | a) | Explain the PLM Strategy, Principles for PLM strategy. | 07 |
| | b) | Explain Sources of Problem in Product Data. | 07 |
| Q.7 | Write Short note on (Any Four) | | 14 |
| | a) | Product Structure | |
| | b) | Benefits of PLM | |
| | c) | Need of Product Database Management PDM | |
| | d) | Engineering Database Management (EDM) | |
| | e) | Stages in NPD (New Product Development) | |
| | f) | PLM as Business Strategy | |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Select the correct alternative. 14

- 1) The most important performance dimension for product development project is
 - a) Time required to market the product
 - b) Time to target Customer
 - c) Time to advertise and reach consumer
 - d) Time required by seller
- 2) What does the term PLC stands for?
 - a) Product life cycle
 - b) Production life cycle
 - c) Product long cycle
 - d) Production long cycle
- 3) In which of the following stages of product life cycle a company reduces sales promotion to take advantage of heavy consumer demand?
 - a) Introduction
 - b) Growth
 - c) Maturity
 - d) Decline
- 4) Increased competition leads to price decrease, increasing public awareness, sales volume increase significantly are the characteristics of _____ in PLC.
 - a) Mature stage
 - b) Decline stage
 - c) Growth stage
 - d) Market introduction stage
- 5) _____ includes review of sales, profit projections and cost for a new product, to find out whether it satisfied the company objective or not.
 - a) Product Development
 - b) Business Analysis
 - c) Marketing Strategy
 - d) Test Marketing
- 6) The term DFA stands for: _____.
 - a) Design for Management and Administration
 - b) Design for Manufacturing and Administration
 - c) Design for Assembly
 - d) Design for Management and Assembly
- 7) What does the term PDM stands for?
 - a) Product Data Management
 - b) Product Database Management
 - c) Product Drawing and Manufacturing
 - d) Production Data Manufacturing

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Product Life Cycle Management (197041715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) Solve any two questions from each section.
2) Figures to the right indicate full marks.

Section – I

- Q.2** a) Define PLM. List and Explain different phases in PLM. **07**
b) What is the difference between PLM and ERP? **07**
- Q.3** a) Explain PLM Significance and Scope of PLM. **07**
b) How PLM can be operational framework of CIM? **07**
- Q.4** a) What is Industry 4.0? List Benefits of Digital Manufacturing. **07**
b) What is the Necessity of PLM in Manufacturing Sector? **07**

Section – II

- Q.5** a) Explain PLCM system, system architecture, information models and product structure. **07**
b) Role of information model and data model. Explain. **07**
- Q.6** a) Explain the PLM Strategy, Principles for PLM strategy. **07**
b) Explain Sources of Problem in Product Data. **07**
- Q.7 Write Short note on (Any Four) **14****
- a) Product Structure
 - b) Benefits of PLM
 - c) Need of Product Database Management PDM
 - d) Engineering Database Management (EDM)
 - e) Stages in NPD (New Product Development)
 - f) PLM as Business Strategy

Seat No.	
----------	--

Set

P

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain Relationship between demand and supply. **05**
 b) Explain Price Elasticity of Demand. **05**
- Q.3** a) Explain Concept of Cost and difference between cost and price. **05**
 b) Explain Long run and short run costs. **04**
- Q.4** a) Explain inflation, causes and consequences and control of inflation. **05**
 b) Explain Time Value of Money. **04**
- Q.5 Short Notes. (Any Three)** **09**
 a) Major topics in Engineering Economics
 b) Theory of Demand, Law of demand
 c) Break Even Analysis
 d) Cash flow diagram

Section – II

- Q.6** a) Explain Engineering and economic approach. **05**
 b) Explain elementary economic analysis. **05**
- Q.7** a) Explain types of maintenance practices, cost of maintenance. **05**
 b) Explain Routine maintenance & predictive maintenance. **04**
- Q.8** a) Explain project management life cycle and its block diagram. **05**
 b) Explain technical appraisal and financial appraisal. **04**
- Q.9 Short Notes. (Any Three)** **09**
 a) Break-even point in make or buy decision
 b) Preventive and breakdown maintenance
 c) Financial appraisal.
 d) Phases of value analysis

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) If break-even output/quantity is 500 units and price per unit is Rs. 400, then what will be total revenue?

a) 1 Lakh	b) 2 Lakh
c) 3 Lakh	d) 4 Lakh
- 2) If Total Fixed Cost is Rs. 40,000, Price per unit is Rs. 100 and Average Variable cost is Rs. 100. Then what will be break-even output/quantity?

a) 200 units	b) 300 units
c) 400 units	d) 500 units
- 3) Economic profit includes _____.

a) Implicit and explicit cost	b) Implicit cost
c) Explicit cost	d) Opportunity cost
- 4) With increase in cost of preventive maintenance, the breakdown maintenance cost will be _____.

a) Increase	b) Decrease
c) No change	d) None from above
- 5) Cost Classification carried out on various factor like _____.

a) Resources deployed against the planned
b) Status of the Project
c) Manpower required
d) Direct & Indirect Cost
- 6) Which of the following represents the estimated value of the work actually accomplished?

a) Earned value (EV)	b) Planned value (PV)
c) Actual cost (AC)	d) Cost variance (CV)
- 7) When demand increases, the price _____.

a) Falls	b) Rises
c) No change	d) None from above

Seat No.	
----------	--

Set

Q

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to right indicate full marks.

Section – I

- | | | | |
|------------|---------------------------------|----------------------------------------------------------------------|-----------|
| Q.2 | a) | Explain Relationship between demand and supply. | 05 |
| | b) | Explain Price Elasticity of Demand. | 05 |
| Q.3 | a) | Explain Concept of Cost and difference between cost and price. | 05 |
| | b) | Explain Long run and short run costs. | 04 |
| Q.4 | a) | Explain inflation, causes and consequences and control of inflation. | 05 |
| | b) | Explain Time Value of Money. | 04 |
| Q.5 | Short Notes. (Any Three) | | |
| | a) | Major topics in Engineering Economics | 09 |
| | b) | Theory of Demand, Law of demand | |
| | c) | Break Even Analysis | |
| | d) | Cash flow diagram | |

Section – II

- | | | | |
|------------|---------------------------------|--------------------------------------------------------------|-----------|
| Q.6 | a) | Explain Engineering and economic approach. | 05 |
| | b) | Explain elementary economic analysis. | 05 |
| Q.7 | a) | Explain types of maintenance practices, cost of maintenance. | 05 |
| | b) | Explain Routine maintenance & predictive maintenance. | 04 |
| Q.8 | a) | Explain project management life cycle and its block diagram. | 05 |
| | b) | Explain technical appraisal and financial appraisal. | 04 |
| Q.9 | Short Notes. (Any Three) | | 09 |
| | a) | Break-even point in make or buy decision | |
| | b) | Preventive and breakdown maintenance | |
| | c) | Financial appraisal. | |
| | d) | Phases of value analysis | |

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) With increase in cost of preventive maintenance, the breakdown maintenance cost will be _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None from above
- 2) Cost Classification carried out on various factor like _____.
 - a) Resources deployed against the planned
 - b) Status of the Project
 - c) Manpower required
 - d) Direct & Indirect Cost
- 3) Which of the following represents the estimated value of the work actually accomplished?
 - a) Earned value (EV)
 - b) Planned value (PV)
 - c) Actual cost (AC)
 - d) Cost variance (CV)
- 4) When demand increases, the price _____.
 - a) Falls
 - b) Rises
 - c) No change
 - d) None from above
- 5) Relationship between price and demand is _____.
 - a) Direct
 - b) Inverse
 - c) Proportionate
 - d) Positive
- 6) What is demand curve?
 - a) Shows relationship between price and quantity supplied
 - b) Indicates the quantity demanded at each price in a series of prices
 - c) Graphs as an upward sloping line
 - d) Shows the relationship between income and spending
- 7) In the case of perfect elasticity, the demand curve is _____.
 - a) Vertical
 - b) Horizontal
 - c) Flat
 - d) Steep

- 8) An increase in supply, demand remaining constant will change the equilibrium..
- a) Causing a fall in price
 - b) Causing a backward shift in demand curve
 - c) Causing no change in price
 - d) Causing no change in income
- 9) Which one is not the type of elasticity of demand?
- a) Price
 - b) Consumer preferences
 - c) Income
 - d) Cross
- 10) Car and petrol are _____.
- a) Complimentary goods
 - b) Substitute goods
 - c) Supplementary goods
 - d) Reserve goods
- 11) When a market is in equilibrium, _____.
- a) There is no shortage and no surplus at the equilibrium price
 - b) Everyone has all they want of the commodity in question
 - c) The supply curve has the same slope as the demand curve
 - d) The number of buyers is exactly equal to the number of sellers
- 12) If break-even output/quantity is 500 units and price per unit is Rs. 400, then what will be total revenue?
- a) 1 Lakh
 - b) 2 Lakh
 - c) 3 Lakh
 - d) 4 Lakh
- 13) If Total Fixed Cost is Rs. 40,000, Price per unit is Rs. 100 and Average Variable cost is Rs. 100. Then what will be break-even output/quantity?
- a) 200 units
 - b) 300 units
 - c) 400 units
 - d) 500 units
- 14) Economic profit includes _____.
- a) Implicit and explicit cost
 - b) Implicit cost
 - c) Explicit cost
 - d) Opportunity cost

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain Relationship between demand and supply. **05**
 b) Explain Price Elasticity of Demand. **05**
- Q.3** a) Explain Concept of Cost and difference between cost and price. **05**
 b) Explain Long run and short run costs. **04**
- Q.4** a) Explain inflation, causes and consequences and control of inflation. **05**
 b) Explain Time Value of Money. **04**
- Q.5 Short Notes. (Any Three)** **09**
 a) Major topics in Engineering Economics
 b) Theory of Demand, Law of demand
 c) Break Even Analysis
 d) Cash flow diagram

Section – II

- Q.6** a) Explain Engineering and economic approach. **05**
 b) Explain elementary economic analysis. **05**
- Q.7** a) Explain types of maintenance practices, cost of maintenance. **05**
 b) Explain Routine maintenance & predictive maintenance. **04**
- Q.8** a) Explain project management life cycle and its block diagram. **05**
 b) Explain technical appraisal and financial appraisal. **04**
- Q.9 Short Notes. (Any Three)** **09**
 a) Break-even point in make or buy decision
 b) Preventive and breakdown maintenance
 c) Financial appraisal.
 d) Phases of value analysis

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Car and petrol are _____.
 - a) Complimentary goods
 - b) Substitute goods
 - c) Supplementary goods
 - d) Reserve goods
- 2) When a market is in equilibrium, _____.
 - a) There is no shortage and no surplus at the equilibrium price
 - b) Everyone has all they want of the commodity in question
 - c) The supply curve has the same slope as the demand curve
 - d) The number of buyers is exactly equal to the number of sellers
- 3) If break-even output/quantity is 500 units and price per unit is Rs. 400, then what will be total revenue?
 - a) 1 Lakh
 - b) 2 Lakh
 - c) 3 Lakh
 - d) 4 Lakh
- 4) If Total Fixed Cost is Rs. 40,000, Price per unit is Rs. 100 and Average Variable cost is Rs. 100. Then what will be break-even output/quantity?
 - a) 200 units
 - b) 300 units
 - c) 400 units
 - d) 500 units
- 5) Economic profit includes _____.
 - a) Implicit and explicit cost
 - b) Implicit cost
 - c) Explicit cost
 - d) Opportunity cost
- 6) With increase in cost of preventive maintenance, the breakdown maintenance cost will be _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None from above
- 7) Cost Classification carried out on various factor like _____.
 - a) Resources deployed against the planned
 - b) Status of the Project
 - c) Manpower required
 - d) Direct & Indirect Cost

- 8) Which of the following represents the estimated value of the work actually accomplished?
- a) Earned value (EV)
 - b) Planned value (PV)
 - c) Actual cost (AC)
 - d) Cost variance (CV)
- 9) When demand increases, the price _____.
- a) Falls
 - b) Rises
 - c) No change
 - d) None from above
- 10) Relationship between price and demand is _____.
- a) Direct
 - b) Inverse
 - c) Proportionate
 - d) Positive
- 11) What is demand curve?
- a) Shows relationship between price and quantity supplied
 - b) Indicates the quantity demanded at each price in a series of prices
 - c) Graphs as an upward sloping line
 - d) Shows the relationship between income and spending
- 12) In the case of perfect elasticity, the demand curve is _____.
- a) Vertical
 - b) Horizontal
 - c) Flat
 - d) Steep
- 13) An increase in supply, demand remaining constant will change the equilibrium..
- a) Causing a fall in price
 - b) Causing a backward shift in demand curve
 - c) Causing no change in price
 - d) Causing no change in income
- 14) Which one is not the type of elasticity of demand?
- a) Price
 - b) Consumer preferences
 - c) Income
 - d) Cross

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Business Economics (197041716)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Question no. 2 is compulsory in section I, and solve any two questions from the remaining.
 2) Question no. 6 is compulsory in section II, and solve any two questions from the remaining.
 3) Figures to right indicate full marks.

Section – I

- Q.2** a) Explain Relationship between demand and supply. **05**
 b) Explain Price Elasticity of Demand. **05**
- Q.3** a) Explain Concept of Cost and difference between cost and price. **05**
 b) Explain Long run and short run costs. **04**
- Q.4** a) Explain inflation, causes and consequences and control of inflation. **05**
 b) Explain Time Value of Money. **04**
- Q.5 Short Notes. (Any Three)** **09**
 a) Major topics in Engineering Economics
 b) Theory of Demand, Law of demand
 c) Break Even Analysis
 d) Cash flow diagram

Section – II

- Q.6** a) Explain Engineering and economic approach. **05**
 b) Explain elementary economic analysis. **05**
- Q.7** a) Explain types of maintenance practices, cost of maintenance. **05**
 b) Explain Routine maintenance & predictive maintenance. **04**
- Q.8** a) Explain project management life cycle and its block diagram. **05**
 b) Explain technical appraisal and financial appraisal. **04**
- Q.9 Short Notes. (Any Three)** **09**
 a) Break-even point in make or buy decision
 b) Preventive and breakdown maintenance
 c) Financial appraisal.
 d) Phases of value analysis

Seat No.	
----------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

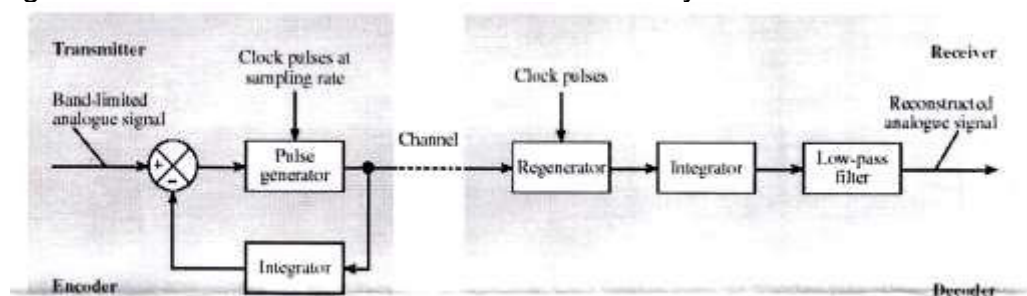
Duration: 30 Minutes

Marks:14

Q.1 Select suitable option.

14

- 1) Following is not a disadvantage of digital communication.
 - a) Binary coding
 - b) Critical synchronization requirement
 - c) Quantization noise
 - d) Presence of Jitter
- 2) Companding is used to _____.
 - a) eliminate quantizing noise in PCM
 - b) allow amplitude limiting in the PCM receivers
 - c) improve S/N ratio for small signals in PCM
 - d) Overcome impulse noise in PCM receiver
- 3) Nit - is a unit of information when base of the logarithm is _____.
 - a) 2
 - b) 10
 - c) natural
 - d) none of these
- 4) Rather than sending the absolute value of each sample, it is possible to achieve a smaller transmission bit-rate by sending the difference between consecutive samples. This is known as _____.
 - a) delta modulation
 - b) delta-sigma modulation
 - c) adaptive delta modulation
 - d) differential PCM
- 5) The figure below shows an example of a modulation system used in digital communication. What is that modulation system?



- a) PCM Modulation
- b) Delta Modulation
- c) Sigma Modulation
- d) Differential Modulation

- 6) Reversible or lossless coding is a type of coding for which the exact data can be recovered after decoding. This type of coding is used by _____.
- a) PCM encoding
 - b) Huffman encoding
 - c) Run-length encoding
 - d) Both b and c
- 7) The use of non-uniform quantization leads to _____.
- a) reduction in transmission bandwidth
 - b) increase in maximum SNR
 - c) increase in SNR for signal levels
 - d) simplification of quantization process
- 8) ASK, PSK, FSK, and QAM are examples of _____ encoding.
- a) Digital-to-digital
 - b) Digital-to-analog
 - c) Analog-to-analog
 - d) Analog-to-digital
- 9) In QAM, both phase and _____ of a carrier frequency are varied.
- a) Amplitude
 - b) Frequency
 - c) Bit rate
 - d) Baud rate
- 10) Which of the following is most affected by noise?
- a) PSK
 - b) ASK
 - c) FSK
 - d) QAM
- 11) Which of the following modulation techniques are used by modems?
- a) 16-QAM
 - b) FSK
 - c) 8-PSK
 - d) All of the above
- 12) In cyclic redundancy checking, the divisor is _____ the CRC.
- a) one bit less than
 - b) one bit more than
 - c) the same size as
 - d) none of the above
- 13) In _____ error correction, the receiver corrects errors without requesting retransmission.
- a) onward
 - b) forward
 - c) backward
 - d) none of the above
- 14) A simple parity-check code can detect _____ errors.
- a) an odd-number of
 - b) an even-number of
 - c) two
 - d) no errors

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt the following. (Any Four)

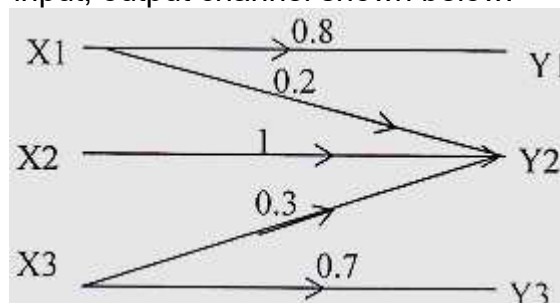
16

- Give the basic difference between Analog and Digital communication.
- Define non uniform Quantization.
- State the different characteristics & properties of Line coding.
- Discuss the term Power Spectra & its types & explain any one.
- The probabilities of five possible outcomes of an experiment are given as $1/2, 1/4, 1/8, 1/16, 1/16$. Determine the entropy and information rate if there are 16 outcomes per second.

Q.3 Attempt the following. (Any Two)

12

- Consider a binary input, output channel shown below.



Find $H(X)$, $H(Y)$, $H(X|Y)$, $H(Y|X)$ and $H(XY)$

- A discrete memory less source has an alphabet of seven symbols with probabilities 0.3, 0.20, 0.16, 0.14, 0.10, 0.02, 0.08 resp. Compute Huffman code for this source, calculate entropy, avg. codeword length & variance of this code.
- With suitable diagram explain ADM transmitter & receiver.

Section – II

Q.4 Attempt the following. (Any Four)

16

- What is coherent and non coherent detection? Give suitable examples.
- With suitable waveforms and equations explain ASK, FSK and PSK.
- With suitable diagram explain DSSS transmitter & receiver.
- With suitable example & diagram explain FHSS. What are its types?
- Derive an expression for coding efficiency.

Q.5 Attempt the following. (Any Two)

- a) With suitable block diagram explain QPSK. What are its advantages? What are its applications?
- b) For a (6,3) code the generator matrix G is given by.

$$G = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

- i) Realize an encoder for this code
- ii) Verify that this code is signal error correcting code
- iii) If the received codeword is 0 0 0 1 1 0, find the syndrome.
- c) Explain MSK modulator and demodulator with waveform.

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

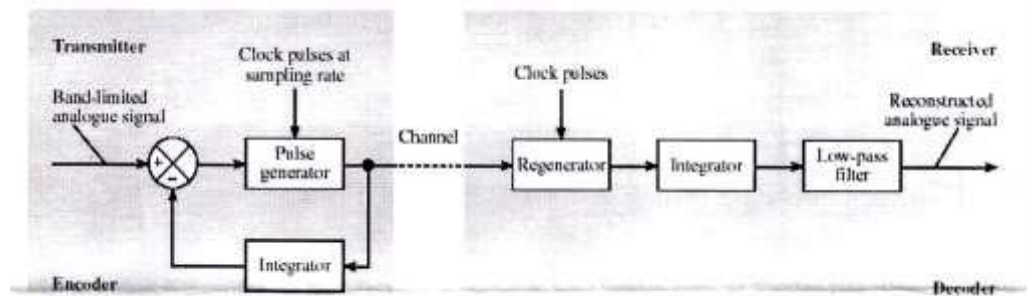
Marks:14

Q.1 Select suitable option.

14

- 1) ASK, PSK, FSK, and QAM are examples of _____ encoding.
 - a) Digital-to-digital
 - b) Digital-to-analog
 - c) Analog-to-analog
 - d) Analog-to-digital
- 2) In QAM, both phase and _____ of a carrier frequency are varied.
 - a) Amplitude
 - b) Frequency
 - c) Bit rate
 - d) Baud rate
- 3) Which of the following is most affected by noise?
 - a) PSK
 - b) ASK
 - c) FSK
 - d) QAM
- 4) Which of the following modulation techniques are used by modems?
 - a) 16-QAM
 - b) FSK
 - c) 8-PSK
 - d) All of the above
- 5) In cyclic redundancy checking, the divisor is _____ the CRC.
 - a) one bit less than
 - b) one bit more than
 - c) the same size as
 - d) none of the above
- 6) In _____ error correction, the receiver corrects errors without requesting retransmission.
 - a) onward
 - b) forward
 - c) backward
 - d) none of the above
- 7) A simple parity-check code can detect _____ errors.
 - a) an odd-number of
 - b) an even-number of
 - c) two
 - d) no errors
- 8) Following is not a disadvantage of digital communication.
 - a) Binary coding
 - b) Critical synchronization requirement
 - c) Quantization noise
 - d) Presence of Jitter

- 9) Companding is used to _____.
- eliminate quantizing noise in PCM
 - allow amplitude limiting in the PCM receivers
 - improve S/N ratio for small signals in PCM
 - Overcome impulse noise in PCM receiver
- 10) Nit - is a unit of information when base of the logarithm is _____.
- 2
 - 10
 - natural
 - none of these
- 11) Rather than sending the absolute value of each sample, it is possible to achieve a smaller transmission bit-rate by sending the difference between consecutive samples. This is known as _____.
- delta modulation
 - delta-sigma modulation
 - adaptive delta modulation
 - differential PCM
- 12) The figure below shows an example of a modulation system used in digital communication. What is that modulation system?



- PCM Modulation
 - Delta Modulation
 - Sigma Modulation
 - Differential Modulation
- 13) Reversible or lossless coding is a type of coding for which the exact data can be recovered after decoding. This type of coding is used by _____.
- PCM encoding
 - Huffman encoding
 - Run-length encoding
 - Both b and c
- 14) The use of non-uniform quantization leads to _____.
- reduction in transmission bandwidth
 - increase in maximum SNR
 - increase in SNR for signal levels
 - simplification of quantization process

Seat
No.

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt the following. (Any Four)

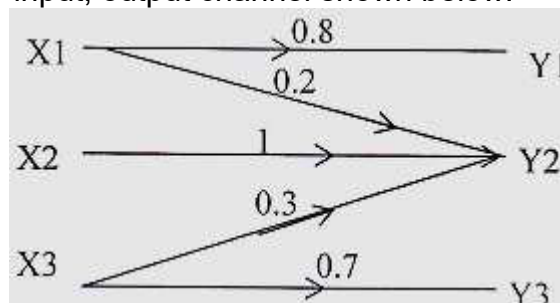
16

- Give the basic difference between Analog and Digital communication.
- Define non uniform Quantization.
- State the different characteristics & properties of Line coding.
- Discuss the term Power Spectra & its types & explain any one.
- The probabilities of five possible outcomes of an experiment are given as $1/2, 1/4, 1/8, 1/16, 1/16$. Determine the entropy and information rate if there are 16 outcomes per second.

Q.3 Attempt the following. (Any Two)

12

- Consider a binary input, output channel shown below.



Find $H(X)$, $H(Y)$, $H(X|Y)$, $H(Y|X)$ and $H(XY)$

- A discrete memory less source has an alphabet of seven symbols with probabilities 0.3, 0.20, 0.16, 0.14, 0.10, 0.02, 0.08 resp. Compute Huffman code for this source, calculate entropy, avg. codeword length & variance of this code.
- With suitable diagram explain ADM transmitter & receiver.

Section – II

Q.4 Attempt the following. (Any Four)

16

- What is coherent and non coherent detection? Give suitable examples.
- With suitable waveforms and equations explain ASK, FSK and PSK.
- With suitable diagram explain DSSS transmitter & receiver.
- With suitable example & diagram explain FHSS. What are its types?
- Derive an expression for coding efficiency.

Q.5 Attempt the following. (Any Two)

- a) With suitable block diagram explain QPSK. What are its advantages? What are its applications?
- b) For a (6,3) code the generator matrix G is given by.

$$G = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

- i) Realize an encoder for this code
- ii) Verify that this code is signal error correcting code
- iii) If the received codeword is 0 0 0 1 1 0, find the syndrome.
- c) Explain MSK modulator and demodulator with waveform.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

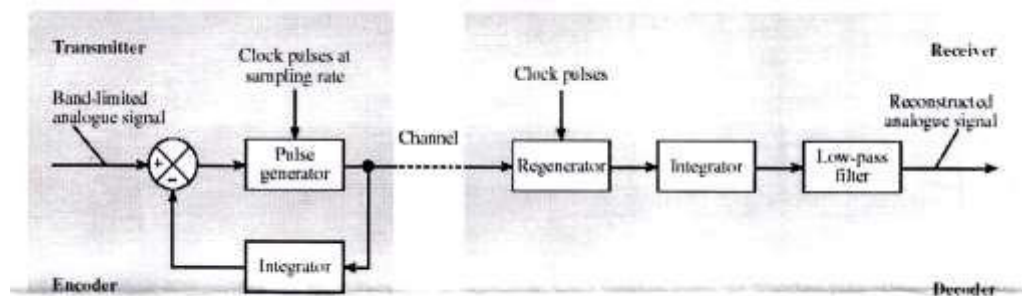
Marks:14

Q.1 Select suitable option.

14

- 1) Which of the following modulation techniques are used by modems?
 - a) 16-QAM
 - b) FSK
 - c) 8-PSK
 - d) All of the above
- 2) In cyclic redundancy checking, the divisor is _____ the CRC.
 - a) one bit less than
 - b) one bit more than
 - c) the same size as
 - d) none of the above
- 3) In _____ error correction, the receiver corrects errors without requesting retransmission.
 - a) onward
 - b) forward
 - c) backward
 - d) none of the above
- 4) A simple parity-check code can detect _____ errors.
 - a) an odd-number of
 - b) an even-number of
 - c) two
 - d) no errors
- 5) Following is not a disadvantage of digital communication.
 - a) Binary coding
 - b) Critical synchronization requirement
 - c) Quantization noise
 - d) Presence of Jitter
- 6) Companding is used to _____.
 - a) eliminate quantizing noise in PCM
 - b) allow amplitude limiting in the PCM receivers
 - c) improve S/N ratio for small signals in PCM
 - d) Overcome impulse noise in PCM receiver
- 7) Nit - is a unit of information when base of the logarithm is _____.
 - a) 2
 - b) 10
 - c) natural
 - d) none of these

- 8) Rather than sending the absolute value of each sample, it is possible to achieve a smaller transmission bit-rate by sending the difference between consecutive samples. This is known as _____.
- a) delta modulation b) delta-sigma modulation
c) adaptive delta modulation d) differential PCM
- 9) The figure below shows an example of a modulation system used in digital communication. What is that modulation system?



- a) PCM Modulation b) Delta Modulation
c) Sigma Modulation d) Differential Modulation
- 10) Reversible or lossless coding is a type of coding for which the exact data can be recovered after decoding. This type of coding is used by _____.
- a) PCM encoding b) Huffman encoding
c) Run-length encoding d) Both b and c
- 11) The use of non-uniform quantization leads to _____.
- a) reduction in transmission bandwidth
b) increase in maximum SNR
c) increase in SNR for signal levels
d) simplification of quantization process
- 12) ASK, PSK, FSK, and QAM are examples of _____ encoding.
- a) Digital-to-digital b) Digital-to-analog
c) Analog-to-analog d) Analog-to-digital
- 13) In QAM, both phase and _____ of a carrier frequency are varied.
- a) Amplitude b) Frequency
c) Bit rate d) Baud rate
- 14) Which of the following is most affected by noise?
- a) PSK b) ASK
c) FSK d) QAM

Seat
No.

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

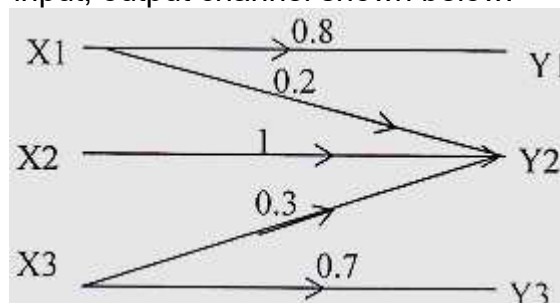
- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I**Q.2 Attempt the following. (Any Four)****16**

- Give the basic difference between Analog and Digital communication.
- Define non uniform Quantization.
- State the different characteristics & properties of Line coding.
- Discuss the term Power Spectra & its types & explain any one.
- The probabilities of five possible outcomes of an experiment are given as $1/2, 1/4, 1/8, 1/16, 1/16$. Determine the entropy and information rate if there are 16 outcomes per second.

Q.3 Attempt the following. (Any Two)**12**

- Consider a binary input, output channel shown below.



Find $H(X)$, $H(Y)$, $H(X|Y)$, $H(Y|X)$ and $H(XY)$

- A discrete memory less source has an alphabet of seven symbols with probabilities 0.3, 0.20, 0.16, 0.14, 0.10, 0.02, 0.08 resp. Compute Huffman code for this source, calculate entropy, avg. codeword length & variance of this code.
- With suitable diagram explain ADM transmitter & receiver.

Section – II**Q.4 Attempt the following. (Any Four)****16**

- What is coherent and non coherent detection? Give suitable examples.
- With suitable waveforms and equations explain ASK, FSK and PSK.
- With suitable diagram explain DSSS transmitter & receiver.
- With suitable example & diagram explain FHSS. What are its types?
- Derive an expression for coding efficiency.

Q.5 Attempt the following. (Any Two)

- a) With suitable block diagram explain QPSK. What are its advantages? What are its applications?
- b) For a (6,3) code the generator matrix G is given by.

$$G = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

- i) Realize an encoder for this code
- ii) Verify that this code is signal error correcting code
- iii) If the received codeword is 0 0 0 1 1 0, find the syndrome.
- c) Explain MSK modulator and demodulator with waveform.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Communication (BTN04501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt the following. (Any Four)

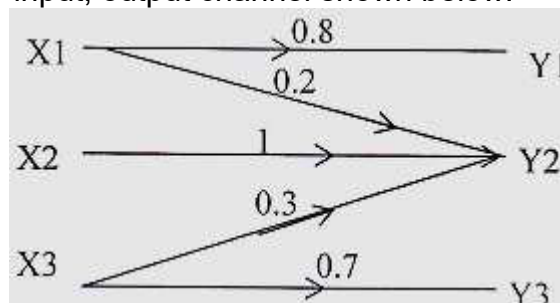
16

- Give the basic difference between Analog and Digital communication.
- Define non uniform Quantization.
- State the different characteristics & properties of Line coding.
- Discuss the term Power Spectra & its types & explain any one.
- The probabilities of five possible outcomes of an experiment are given as $1/2, 1/4, 1/8, 1/16, 1/16$. Determine the entropy and information rate if there are 16 outcomes per second.

Q.3 Attempt the following. (Any Two)

12

- Consider a binary input, output channel shown below.



Find $H(X), H(Y), H(X|Y), H(Y|X)$ and $H(XY)$

- A discrete memory less source has an alphabet of seven symbols with probabilities 0.3, 0.20, 0.16, 0.14, 0.10, 0.02, 0.08 resp. Compute Huffman code for this source, calculate entropy, avg. codeword length & variance of this code.
- With suitable diagram explain ADM transmitter & receiver.

Section – II

Q.4 Attempt the following. (Any Four)

16

- What is coherent and non coherent detection? Give suitable examples.
- With suitable waveforms and equations explain ASK, FSK and PSK.
- With suitable diagram explain DSSS transmitter & receiver.
- With suitable example & diagram explain FHSS. What are its types?
- Derive an expression for coding efficiency.

Q.5 Attempt the following. (Any Two)

- a) With suitable block diagram explain QPSK. What are its advantages? What are its applications?
- b) For a (6,3) code the generator matrix G is given by.

$$G = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

- i) Realize an encoder for this code
- ii) Verify that this code is signal error correcting code
- iii) If the received codeword is 0 0 0 1 1 0, find the syndrome.
- c) Explain MSK modulator and demodulator with waveform.

- 10) The poles of the Butterworth LPF with cutoff frequency Ω_c .
- a) lie on the unit circle in s plane
 - b) lie on the RHS of s plane
 - c) lie on a circle of radius Ω_c
 - d) None of these
- 11) Which of the following is not true for IIR filters?
- a) Impulse response duration is infinite
 - b) They have poles
 - c) They give linear phase response
 - d) All of these
- 12) The FIR filter of order M gives linear phase response if _____.
- a) $h(n) < \infty$
 - b) $h(n) = h(-n)$
 - c) $h(n) = h(M - 1 - n)$
 - d) None of these
- 13) The hardware used in digital signal processor to scale down or scale up operands is _____.
- a) Barrel shifter
 - b) MAC
 - c) Multiplier
 - d) ALU
- 14) The Ideal filters are _____.
- a) Causal
 - b) Non causal
 - c) May be causal or non causal
 - d) None of these

Seat No.	
----------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate neat marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four of the followings. 16

- a) State and prove circular time shift property of DFT of a DT signal.
- b) Compute circular convolution of the signal $x_1[n] = \{1,3,4,2\}$ & $x_2[n] = \{2,3,5,4\}$
- c) Compute 4 point DFT of the sequence $x(n) = \{1, -2, 3, 5\}$
- d) Consider the signal $x(n) = \{1, 4, 6, 2, 7, 4\}$, obtain following sequences
 - 1) $x_1(n) = x((-n))_6$
 - 2) $x_2(n) = x((n - 2))_6$
- e) Obtain the direct form realization of the system characterized by transfer function

$$H(z) = 1 + \frac{1}{2}Z^{-1} + \frac{3}{4}Z^{-2} + Z^{-3} + 2Z^{-4}$$

Q.3 Solve any two of the followings. 12

- a) Realize the IIR system given below in i. Direct form I, ii. Direct form II
 $y(n) = -y(n - 1) + 2y(n - 2) + x(n) + 2x(n - 1) + 3x(n - 2)$
- b) Obtain the output of a filter using overlap & save method whose input & impulse response are as below
 $x(n) = \{2, 1, 1, 3, 1, 4, 1, 2, 3, 4\}$ & $h(n) = \{2, 4, 3\}$
- c) Prove that the multiplication of the DFT's of two sequences is equivalent to the DFT of time domain circular convolution of two sequences.

Section – II

Q.4 Solve any four of the followings. 16

- a) What is signal flow graph? How to obtain signal flow graph for a given direct form structure? Explain with example.
- b) Draw and explain the barrel shifter block of DSP chip.
- c) Convert the analog filter to digital filter whose system function is

$$H(s) = \frac{(s + 0.2)}{(s + 0.2)^2 + 9}$$

Use bilinear transformation. Assume T = 1s.

- d) Given the desired specifications $\Omega_p, \Omega_s, \delta_1, \delta_2$ of Butterworth filter derive the relation for obtaining order N & cutoff frequency Ω_c .
- e) Explain in detail Multiply & Accumulate (MAC) unit of digital signal processor.

Q.5 Solve any two of the followings.

a) Explain bilinear transformation along with mapping between s domain & z domain in this method.

b) The desired frequency response of a low pass filter is

$$H_d(e^{j\omega}) = \begin{cases} e^{-2j\omega} & -\frac{\pi}{4} \leq \omega \leq \pi/4 \\ 0 & \frac{\pi}{4} \leq |\omega| \leq \pi \end{cases}$$

Determine $h_d(n)$. Also determine $h(n)$ using symmetric Rectangular window of length 5

c) Design a digital Butterworth filter to meet the following constraints.

$$\begin{aligned} 0.8 \leq |H(e^{j\omega})| \leq 1 & \quad 0 \leq \omega \leq 0.25\pi \\ |H(e^{j\omega})| \leq 0.2 & \quad 0.6\pi \leq \omega \leq \pi \end{aligned}$$

Using Bilinear transformation. Use $T = 1$ sec

Seat No.	
----------	--

Set

Q

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The addressing mode that is convenient for FFT computation is _____.
 a) Indirect addressing b) Circular mode addressing
 c) Bit reversed addressing d) Memory mapped addressing
- 2) The main lobe width of the window of size M is _____.
 a) Directly proportional to M b) Inversely proportional to M
 c) Independent of M d) None of these
- 3) The poles of the Butterworth LPF with cutoff frequency Ω_c .
 a) lie on the unit circle in s plane
 b) lie on the RHS of s plane
 c) lie on a circle of radius Ω_c
 d) None of these
- 4) Which of the following is not true for IIR filters?
 a) Impulse response duration is infinite
 b) They have poles
 c) They give linear phase response
 d) All of these
- 5) The FIR filter of order M gives linear phase response if _____.
 a) $h(n) < \infty$ b) $h(n) = h(-n)$
 c) $h(n) = h(M - 1 - n)$ d) None of these
- 6) The hardware used in digital signal processor to scale down or scale up operands is _____.
 a) Barrel shifter b) MAC
 c) Multiplier d) ALU
- 7) The Ideal filters are _____.
 a) Causal
 b) Non causal
 c) May be causal or non causal
 d) None of these

Seat No.	
----------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate neat marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four of the followings. 16

- State and prove circular time shift property of DFT of a DT signal.
- Compute circular convolution of the signal $x_1[n] = \{1,3,4,2\}$ & $x_2[n] = \{2,3,5,4\}$
- Compute 4 point DFT of the sequence $x(n) = \{1, -2, 3, 5\}$
- Consider the signal $x(n) = \{1, 4, 6, 2, 7, 4\}$, obtain following sequences
 - $x_1(n) = x((-n))_6$
 - $x_2(n) = x((n - 2))_6$
- Obtain the direct form realization of the system characterized by transfer function

$$H(z) = 1 + \frac{1}{2}Z^{-1} + \frac{3}{4}Z^{-2} + Z^{-3} + 2Z^{-4}$$

Q.3 Solve any two of the followings. 12

- Realize the IIR system given below in i. Direct form I, ii. Direct form II
 $y(n) = -y(n - 1) + 2y(n - 2) + x(n) + 2x(n - 1) + 3x(n - 2)$
- Obtain the output of a filter using overlap & save method whose input & impulse response are as below
 $x(n) = \{2,1,1,3,1,4,1,2,3,4\}$ & $h(n) = \{2,4,3\}$
- Prove that the multiplication of the DFT's of two sequences is equivalent to the DFT of time domain circular convolution of two sequences.

Section – II

Q.4 Solve any four of the followings. 16

- What is signal flow graph? How to obtain signal flow graph for a given direct form structure? Explain with example.
- Draw and explain the barrel shifter block of DSP chip.
- Convert the analog filter to digital filter whose system function is

$$H(s) = \frac{(s + 0.2)}{(s + 0.2)^2 + 9}$$

Use bilinear transformation. Assume T = 1s.

- Given the desired specifications $\Omega_p, \Omega_s, \delta_1, \delta_2$ of Butterworth filter derive the relation for obtaining order N & cutoff frequency Ω_c .
- Explain in detail Multiply & Accumulate (MAC) unit of digital signal processor.

Q.5 Solve any two of the followings.

- a) Explain bilinear transformation along with mapping between s domain & z domain in this method.
- b) The desired frequency response of a low pass filter is

$$Hd(e^{j\omega}) = \begin{cases} e^{-2j\omega} & -\frac{\pi}{4} \leq \omega \leq \pi/4 \\ 0 & \frac{\pi}{4} \leq |\omega| \leq \pi \end{cases}$$

Determine $hd(n)$. Also determine $h(n)$ using symmetric Rectangular window of length 5

- c) Design a digital Butterworth filter to meet the following constraints.

$$\begin{aligned} 0.8 \leq |H(e^{j\omega})| \leq 1 & \quad 0 \leq \omega \leq 0.25\pi \\ |H(e^{j\omega})| \leq 0.2 & \quad 0.6\pi \leq \omega \leq \pi \end{aligned}$$

Using Bilinear transformation. Use $T = 1$ sec

Seat No.	
-------------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is not true for IIR filters?
 - a) Impulse response duration is infinite
 - b) They have poles
 - c) They give linear phase response
 - d) All of these
- 2) The FIR filter of order M gives linear phase response if _____.
 - a) $h(n) < \infty$
 - b) $h(n) = h(-n)$
 - c) $h(n) = h(M - 1 - n)$
 - d) None of these
- 3) The hardware used in digital signal processor to scale down or scale up operands is _____.
 - a) Barrel shifter
 - b) MAC
 - c) Multiplier
 - d) ALU
- 4) The Ideal filters are _____.
 - a) Causal
 - b) Non causal
 - c) May be causal or non causal
 - d) None of these
- 5) DFT of a impulse function is _____.
 - a) $\delta[n]$
 - b) 1
 - c) $\delta[n - 1]$
 - d) None
- 6) The following realization minimizes the delay elements _____.
 - a) Direct form-I realization
 - b) Direct form-II realization
 - c) Cascade form realization
 - d) Parallel realization
- 7) The only signal whose ROC is entire z plane is _____.
 - a) $\delta[n]$
 - b) $u[n]$
 - c) $r[n]$
 - d) a^n
- 8) The value of the twiddle factor W_4^5 is _____.
 - a) j
 - b) 1
 - c) $-0.707 + j0.707$
 - d) -j

Seat No.	
----------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate neat marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four of the followings. 16

- State and prove circular time shift property of DFT of a DT signal.
- Compute circular convolution of the signal $x_1[n] = \{1,3,4,2\}$ & $x_2[n] = \{2,3,5,4\}$
- Compute 4 point DFT of the sequence $x(n) = \{1, -2, 3, 5\}$
- Consider the signal $x(n) = \{1, 4, 6, 2, 7, 4\}$, obtain following sequences
 - $x_1(n) = x((-n))_6$
 - $x_2(n) = x((n - 2))_6$
- Obtain the direct form realization of the system characterized by transfer function

$$H(z) = 1 + \frac{1}{2}Z^{-1} + \frac{3}{4}Z^{-2} + Z^{-3} + 2Z^{-4}$$

Q.3 Solve any two of the followings. 12

- Realize the IIR system given below in i. Direct form I, ii. Direct form II
 $y(n) = -y(n - 1) + 2y(n - 2) + x(n) + 2x(n - 1) + 3x(n - 2)$
- Obtain the output of a filter using overlap & save method whose input & impulse response are as below
 $x(n) = \{2,1,1,3,1,4,1,2,3,4\}$ & $h(n) = \{2,4,3\}$
- Prove that the multiplication of the DFT's of two sequences is equivalent to the DFT of time domain circular convolution of two sequences.

Section – II

Q.4 Solve any four of the followings. 16

- What is signal flow graph? How to obtain signal flow graph for a given direct form structure? Explain with example.
- Draw and explain the barrel shifter block of DSP chip.
- Convert the analog filter to digital filter whose system function is

$$H(s) = \frac{(s + 0.2)}{(s + 0.2)^2 + 9}$$

Use bilinear transformation. Assume T = 1s.

- Given the desired specifications $\Omega_p, \Omega_s, \delta_1, \delta_2$ of Butterworth filter derive the relation for obtaining order N & cutoff frequency Ω_c .
- Explain in detail Multiply & Accumulate (MAC) unit of digital signal processor.

Q.5 Solve any two of the followings.

- a) Explain bilinear transformation along with mapping between s domain & z domain in this method.
- b) The desired frequency response of a low pass filter is

$$Hd(e^{j\omega}) = \begin{cases} e^{-2j\omega} & -\frac{\pi}{4} \leq \omega \leq \pi/4 \\ 0 & \frac{\pi}{4} \leq |\omega| \leq \pi \end{cases}$$

Determine $hd(n)$. Also determine $h(n)$ using symmetric Rectangular window of length 5

- c) Design a digital Butterworth filter to meet the following constraints.

$$\begin{aligned} 0.8 \leq |H(e^{j\omega})| \leq 1 & \quad 0 \leq \omega \leq 0.25\pi \\ |H(e^{j\omega})| \leq 0.2 & \quad 0.6\pi \leq \omega \leq \pi \end{aligned}$$

Using Bilinear transformation. Use $T = 1$ sec

Seat No.	
----------	--

Set **S**

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) With signal $x(n) = \{1, 4, 5, 7, 8\}$, if $x_1(n) = x((n-2))_5$ then $x_1(n)$ will be _____.
 - a) $\{5, 7, 8, 1, 4\}$
 - b) $\{7, 8, 1, 4, 5\}$
 - c) $\{4, 5, 7, 8, 4\}$
 - d) $\{1, 4, 5, 7, 8\}$
- 2) The number of complex multiplications required DIT FFT algorithm to compute N point DFT is _____.
 - a) N^2
 - b) $N \log_2 N$
 - c) $(N/2) \log_2 N$
 - d) None of the above
- 3) The addressing mode that is convenient for FFT computation is _____.
 - a) Indirect addressing
 - b) Circular mode addressing
 - c) Bit reversed addressing
 - d) Memory mapped addressing
- 4) The main lobe width of the window of size M is _____.
 - a) Directly proportional to M
 - b) Inversely proportional to M
 - c) Independent of M
 - d) None of these
- 5) The poles of the Butterworth LPF with cutoff frequency Ω_c .
 - a) lie on the unit circle in s plane
 - b) lie on the RHS of s plane
 - c) lie on a circle of radius Ω_c
 - d) None of these
- 6) Which of the following is not true for IIR filters?
 - a) Impulse response duration is infinite
 - b) They have poles
 - c) They give linear phase response
 - d) All of these
- 7) The FIR filter of order M gives linear phase response if _____.
 - a) $h(n) < \infty$
 - b) $h(n) = h(-n)$
 - c) $h(n) = h(M-1-n)$
 - d) None of these

Seat No.	
----------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Digital Signal Processing (BTN04502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate neat marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four of the followings. 16

- a) State and prove circular time shift property of DFT of a DT signal.
- b) Compute circular convolution of the signal $x_1[n] = \{1,3,4,2\}$ & $x_2[n] = \{2,3,5,4\}$
- c) Compute 4 point DFT of the sequence $x(n) = \{1, -2, 3, 5\}$
- d) Consider the signal $x(n) = \{1, 4, 6, 2, 7, 4\}$, obtain following sequences
 - 1) $x_1(n) = x((-n))_6$
 - 2) $x_2(n) = x((n - 2))_6$
- e) Obtain the direct form realization of the system characterized by transfer function

$$H(z) = 1 + \frac{1}{2}Z^{-1} + \frac{3}{4}Z^{-2} + Z^{-3} + 2Z^{-4}$$

Q.3 Solve any two of the followings. 12

- a) Realize the IIR system given below in i. Direct form I, ii. Direct form II
 $y(n) = -y(n - 1) + 2y(n - 2) + x(n) + 2x(n - 1) + 3x(n - 2)$
- b) Obtain the output of a filter using overlap & save method whose input & impulse response are as below
 $x(n) = \{2, 1, 1, 3, 1, 4, 1, 2, 3, 4\}$ & $h(n) = \{2, 4, 3\}$
- c) Prove that the multiplication of the DFT's of two sequences is equivalent to the DFT of time domain circular convolution of two sequences.

Section – II

Q.4 Solve any four of the followings. 16

- a) What is signal flow graph? How to obtain signal flow graph for a given direct form structure? Explain with example.
- b) Draw and explain the barrel shifter block of DSP chip.
- c) Convert the analog filter to digital filter whose system function is

$$H(s) = \frac{(s + 0.2)}{(s + 0.2)^2 + 9}$$

Use bilinear transformation. Assume $T = 1s$.

- d) Given the desired specifications $\Omega_p, \Omega_s, \delta_1, \delta_2$ of Butterworth filter derive the relation for obtaining order N & cutoff frequency Ω_c .
- e) Explain in detail Multiply & Accumulate (MAC) unit of digital signal processor.

Q.5 Solve any two of the followings.

a) Explain bilinear transformation along with mapping between s domain & z domain in this method.

b) The desired frequency response of a low pass filter is

$$Hd(e^{j\omega}) = \begin{cases} e^{-2j\omega} & -\frac{\pi}{4} \leq \omega \leq \pi/4 \\ 0 & \frac{\pi}{4} \leq |\omega| \leq \pi \end{cases}$$

Determine $hd(n)$. Also determine $h(n)$ using symmetric Rectangular window of length 5

c) Design a digital Butterworth filter to meet the following constraints.

$$\begin{aligned} 0.8 \leq |H(e^{j\omega})| \leq 1 & \quad 0 \leq \omega \leq 0.25\pi \\ |H(e^{j\omega})| \leq 0.2 & \quad 0.6\pi \leq \omega \leq \pi \end{aligned}$$

Using Bilinear transformation. Use $T = 1$ sec

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) MVI A, 00h is _____ byte instruction.

a) 3	b) 4
c) 2	d) 1
- 2) The time required to complete one memory/IO read/write operation is called as _____.

a) Instruction Cycle	b) T-state
c) Execution Cycle	d) Machine Cycle
- 3) The total amount of external code memory that can be interfaced to the 8051 is: _____.

a) 32K	b) 16K
c) 46K	d) 64K
- 4) After reset, SP register of 8051 is initialized to address _____.

a) 08H	b) 09H
c) 07H	d) 06H
- 5) In 8051 an external hardware interrupt 1 vector address is _____.

a) 000BH	b) 001BH
c) 0013H	d) 0023H
- 6) Which register is used to enable the interrupts?

a) TCON	b) IE
c) IP	d) SCON
- 7) Which signal of ADC 0808 is start the conversion?

a) ALE	b) START
c) EOC	d) SOC
- 8) Which of the following signal(s) of 8051 must be used in accessing external program ROM?

a) RD	b) WR
c) PSEN	d) both RD and WR

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Solve any Four 16

- a) Draw and explain bus model used in the microprocessor.
- b) Compare microprocessor and microcontroller.
- c) Draw and explain memory organization in 8051.
- d) Write a 8051 program to two 16 bit numbers.
- e) Write 8051 assembly program to blink the LEDs connected to PORT B.

Q.3 Solve any Two 12

- a) Write 8051 C program to transfer the message "YES" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously.
- b) Write an 8051 program to generate a square wave with clock period of 250ms on pin P1.0 continuously. Use Timer 1, mode 1 to create the delay. Assume XTAL = .0592 MHz.
- c) List the interrupt sources in 8051. Write their causes, flag affected, and vector address.

Section – II

Q.4 Solve Any Four 16

- a) Explain addressing modes in PIC 16F877.
- b) With block diagram Explain Timer-0 module used in PIC microcontroller.
- c) Interface a switch to P1.0 and write a program to send FFh when switch is closed and send 00h when switch is open.
- d) Explain PWM mode used in PIC microcontroller.
- e) How do you use the PORT D as PSP? Explain the different control signals and flags used in PSP communication.

Q.5 Solve Any Two 12

- a) Interface ADC 0808/09 to 8051. Write a program to covert analog voltage on channel 1 to digital.
- b) Draw and explain interfacing of 8K x 8 Data ROM to 8051. Write an assembly program to read 10 bytes starting at 2000h in external ROM.
- c) Interface two seven segment display to 8051 and write a program to display decimal values "00" to "99".

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following signal(s) of 8051 must be used in accessing external program ROM?
 - a) RD
 - b) WR
 - c) PSEN
 - d) both RD and WR
- 2) In PIC 16F877 interrupt vector is at _____ in program memory.
 - a) 000 h
 - b) 0004 h
 - c) 0040 h
 - d) 0400 h
- 3) If IRP bit of STATUS register is clear, then _____ will gets selected.
 - a) Bank 0
 - b) Bank 1
 - c) Bank 2 or 3
 - d) Bank 0 or 1
- 4) The PIC 16F877 has interrupts capability up to _____ sources.
 - a) 11
 - b) 13
 - c) 14
 - d) 16
- 5) Timer 1 of the PIC 16F877 is _____ bit, accessed as _____.
 - a) 8, timer/counter
 - b) 16, timer/counter
 - c) 8, timer
 - d) 8, counter
- 6) Which signal of ADC 0808 is specify the conversion completion?
 - a) ALE
 - b) START
 - c) EOC
 - d) SOC
- 7) Operating CCP1 module in PWM mode, PWM period can be set by writing to _____ register.
 - a) PR1
 - b) TMR2
 - c) PR2
 - d) CCP1RL
- 8) MVI A, 00h is _____ byte instruction.
 - a) 3
 - b) 4
 - c) 2
 - d) 1

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Solve any Four 16

- a) Draw and explain bus model used in the microprocessor.
- b) Compare microprocessor and microcontroller.
- c) Draw and explain memory organization in 8051.
- d) Write a 8051 program to two 16 bit numbers.
- e) Write 8051 assembly program to blink the LEDs connected to PORT B.

Q.3 Solve any Two 12

- a) Write 8051 C program to transfer the message "YES" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously.
- b) Write an 8051 program to generate a square wave with clock period of 250ms on pin P1.0 continuously. Use Timer 1, mode 1 to create the delay. Assume XTAL = .0592 MHz.
- c) List the interrupt sources in 8051. Write their causes, flag affected, and vector address.

Section – II

Q.4 Solve Any Four 16

- a) Explain addressing modes in PIC 16F877.
- b) With block diagram Explain Timer-0 module used in PIC microcontroller.
- c) Interface a switch to P1.0 and write a program to send FFh when switch is closed and send 00h when switch is open.
- d) Explain PWM mode used in PIC microcontroller.
- e) How do you use the PORT D as PSP? Explain the different control signals and flags used in PSP communication.

Q.5 Solve Any Two 12

- a) Interface ADC 0808/09 to 8051. Write a program to covert analog voltage on channel 1 to digital.
- b) Draw and explain interfacing of 8K x 8 Data ROM to 8051. Write an assembly program to read 10 bytes starting at 2000h in external ROM.
- c) Interface two seven segment display to 8051 and write a program to display decimal values "00" to "99".

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The PIC 16F877 has interrupts capability up to _____ sources.
 - a) 11
 - b) 13
 - c) 14
 - d) 16
- 2) Timer 1 of the PIC 16F877 is _____ bit, accessed as _____.
 - a) 8, timer/counter
 - b) 16, timer/counter
 - c) 8, timer
 - d) 8, counter
- 3) Which signal of ADC 0808 is specify the conversion completion?
 - a) ALE
 - b) START
 - c) EOC
 - d) SOC
- 4) Operating CCP1 module in PWM mode, PWM period can be set by writing to _____ register.
 - a) PR1
 - b) TMR2
 - c) PR2
 - d) CCP1RL
- 5) MVI A, 00h is _____ byte instruction.
 - a) 3
 - b) 4
 - c) 2
 - d) 1
- 6) The time required to complete one memory/IO read/write operation is called as _____.
 - a) Instruction Cycle
 - b) T-state
 - c) Execution Cycle
 - d) Machine Cycle
- 7) The total amount of external code memory that can be interfaced to the 8051 is: _____.
 - a) 32K
 - b) 16K
 - c) 46K
 - d) 64K
- 8) After reset, SP register of 8051 is initialized to address _____.
 - a) 08H
 - b) 09H
 - c) 07H
 - d) 06H

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Solve any Four 16

- Draw and explain bus model used in the microprocessor.
- Compare microprocessor and microcontroller.
- Draw and explain memory organization in 8051.
- Write a 8051 program to two 16 bit numbers.
- Write 8051 assembly program to blink the LEDs connected to PORT B.

Q.3 Solve any Two 12

- Write 8051 C program to transfer the message "YES" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously.
- Write an 8051 program to generate a square wave with clock period of 250ms on pin P1.0 continuously. Use Timer 1, mode 1 to create the delay. Assume XTAL = .0592 MHz.
- List the interrupt sources in 8051. Write their causes, flag affected, and vector address.

Section – II

Q.4 Solve Any Four 16

- Explain addressing modes in PIC 16F877.
- With block diagram Explain Timer-0 module used in PIC microcontroller.
- Interface a switch to P1.0 and write a program to send FFh when switch is closed and send 00h when switch is open.
- Explain PWM mode used in PIC microcontroller.
- How do you use the PORT D as PSP? Explain the different control signals and flags used in PSP communication.

Q.5 Solve Any Two 12

- Interface ADC 0808/09 to 8051. Write a program to covert analog voltage on channel 1 to digital.
- Draw and explain interfacing of 8K x 8 Data ROM to 8051. Write an assembly program to read 10 bytes starting at 2000h in external ROM.
- Interface two seven segment display to 8051 and write a program to display decimal values "00" to "99".

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Microcontrollers (BTN04503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

Q.2 Solve any Four 16

- Draw and explain bus model used in the microprocessor.
- Compare microprocessor and microcontroller.
- Draw and explain memory organization in 8051.
- Write a 8051 program to two 16 bit numbers.
- Write 8051 assembly program to blink the LEDs connected to PORT B.

Q.3 Solve any Two 12

- Write 8051 C program to transfer the message "YES" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously.
- Write an 8051 program to generate a square wave with clock period of 250ms on pin P1.0 continuously. Use Timer 1, mode 1 to create the delay. Assume XTAL = .0592 MHz.
- List the interrupt sources in 8051. Write their causes, flag affected, and vector address.

Section – II

Q.4 Solve Any Four 16

- Explain addressing modes in PIC 16F877.
- With block diagram Explain Timer-0 module used in PIC microcontroller.
- Interface a switch to P1.0 and write a program to send FFh when switch is closed and send 00h when switch is open.
- Explain PWM mode used in PIC microcontroller.
- How do you use the PORT D as PSP? Explain the different control signals and flags used in PSP communication.

Q.5 Solve Any Two 12

- Interface ADC 0808/09 to 8051. Write a program to covert analog voltage on channel 1 to digital.
- Draw and explain interfacing of 8K x 8 Data ROM to 8051. Write an assembly program to read 10 bytes starting at 2000h in external ROM.
- Interface two seven segment display to 8051 and write a program to display decimal values "00" to "99".

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume data wherever necessary
 4) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option

14

- 1) OLAP is used for _____.
 a) decisions
 b) payment
 c) content management
 d) all of these
- 2) Elementary description of thing, events, activities and transactions is called _____.
 a) attributes
 b) features
 c) data
 d) all of these
- 3) What is not true about DBMS?
 a) it is software
 b) it is very costly always
 c) it acts as an interface between application program and physical data files
 d) it can update data
- 4) Who amongst below is a knowledge worker?
 a) teller in the bank
 b) billing person in the retail store
 c) chartered account in the firm
 d) none of these
- 5) Select appropriate sequence _____.
 a) database, data, knowledge, information
 b) data, database, knowledge, information
 c) data, database, information, knowledge
 d) information, database, knowledge, data
- 6) Two types of decision support systems are _____ and _____.
 a) model driven, data driven
 b) data based, information based
 c) middle, upper
 d) TPS, ERP

- 7) In _____ model, typically, the outcome of one phase acts as the input for the next phase sequentially.
- a) RAD
 - b) Waterfall
 - c) Prototyping
 - d) SDLC
- 8) Take odd man out - MS Project, MS Access, DB2, Oracle
- a) MS Project
 - b) MS Access
 - c) DB2
 - d) Oracle
- 9) A _____ is a product or outcome that is given to the client.
- a) milestone
 - b) SDLC
 - c) waterfall
 - d) none of these
- 10) As the cost of IS _____, it is substituted for labor, which is _____.
- a) increasing, increasing
 - b) decreasing, increasing
 - c) decreasing, decreasing
 - d) increasing, decreasing
- 11) A company only involved in E Commerce is called _____.
- a) brick and mortar
 - b) click and mortar
 - c) virtual organization
 - d) B2B
- 12) What for IS & IT are used in Digital Enterprises?
- a) Research
 - b) Boost employee productivity
 - c) Customer support
 - d) All of these
- 13) Take an odd man out - NEFT, IRCTC, RTGS, PayTM
- a) NEFT
 - b) IRCTC
 - c) RTGS
 - d) PayTM
- 14) Which of below is a major disadvantage of a centralized database?
- a) Expensive
 - b) Requires scheduling
 - c) Causes delays
 - d) All of these

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

SECTION – I

- Q.2 Solve Any Two** **12**
- a) Compare centralized and distributed databases.
 - b) To whom and how IT supports in enterprise?
 - c) With one suitable application discuss electronic content management.
- Q.3 Solve Any Four** **16**
- a) Discuss benefits of E commerce to organizations.
 - b) Evaluate data management problems and challenges.
 - c) Compare OLAP and data mining.
 - d) Describe any four models of e business.
 - e) Justify with example - IT flattens organization structure.

SECTION – II

- Q.4 Solve Any Two** **12**
- a) Explain economical impact of IS on organization.
 - b) Discuss how enterprise resource planning system is being implemented.
 - c) What are the features of modern organization? How IS helps modern organizations?
- Q.5 Solve Any Four** **16**
- a) Discuss pros and cons of waterfall SDLC model.
 - b) How IS and organization are related?
 - c) With suitable example explain de-skilling.
 - d) With suitable example explain employee privacy issue in modern organization.
 - e) With suitable example discuss project requirement specifications.

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume data wherever necessary
 4) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option**14**

- 1) Take odd man out - MS Project, MS Access, DB2, Oracle
 - a) MS Project
 - b) MS Access
 - c) DB2
 - d) Oracle
- 2) A _____ is a product or outcome that is given to the client.
 - a) milestone
 - b) SDLC
 - c) waterfall
 - d) none of these
- 3) As the cost of IS _____, it is substituted for labor, which is _____.
 - a) increasing, increasing
 - b) decreasing, increasing
 - c) decreasing, decreasing
 - d) increasing, decreasing
- 4) A company only involved in E Commerce is called _____.
 - a) brick and mortar
 - b) click and mortar
 - c) virtual organization
 - d) B2B
- 5) What for IS & IT are used in Digital Enterprises?
 - a) Research
 - b) Boost employee productivity
 - c) Customer support
 - d) All of these
- 6) Take an odd man out - NEFT, IRCTC, RTGS, PayTM
 - a) NEFT
 - b) IRCTC
 - c) RTGS
 - d) PayTM
- 7) Which of below is a major disadvantage of a centralized database?
 - a) Expensive
 - b) Requires scheduling
 - c) Causes delays
 - d) All of these
- 8) OLAP is used for _____.
 - a) decisions
 - b) payment
 - c) content management
 - d) all of these

- 9) Elementary description of thing, events, activities and transactions is called _____.
- a) attributes
 - b) features
 - c) data
 - d) all of these
- 10) What is not true about DBMS?
- a) it is software
 - b) it is very costly always
 - c) it acts as an interface between application program and physical data files
 - d) it can update data
- 11) Who amongst below is a knowledge worker?
- a) teller in the bank
 - b) billing person in the retail store
 - c) chartered account in the firm
 - d) none of these
- 12) Select appropriate sequence _____.
- a) database, data, knowledge, information
 - b) data, database, knowledge, information
 - c) data, database, information, knowledge
 - d) information, database, knowledge, data
- 13) Two types of decision support systems are _____ and _____.
- a) model driven, data driven
 - b) data based, information based
 - c) middle, upper
 - d) TPS, ERP
- 14) In _____ model, typically, the outcome of one phase acts as the input for the next phase sequentially.
- a) RAD
 - b) Waterfall
 - c) Prototyping
 - d) SDLC

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

SECTION – I

- Q.2 Solve Any Two** **12**
- a) Compare centralized and distributed databases.
 - b) To whom and how IT supports in enterprise?
 - c) With one suitable application discuss electronic content management.
- Q.3 Solve Any Four** **16**
- a) Discuss benefits of E commerce to organizations.
 - b) Evaluate data management problems and challenges.
 - c) Compare OLAP and data mining.
 - d) Describe any four models of e business.
 - e) Justify with example - IT flattens organization structure.

SECTION – II

- Q.4 Solve Any Two** **12**
- a) Explain economical impact of IS on organization.
 - b) Discuss how enterprise resource planning system is being implemented.
 - c) What are the features of modern organization? How IS helps modern organizations?
- Q.5 Solve Any Four** **16**
- a) Discuss pros and cons of waterfall SDLC model.
 - b) How IS and organization are related?
 - c) With suitable example explain de-skilling.
 - d) With suitable example explain employee privacy issue in modern organization.
 - e) With suitable example discuss project requirement specifications.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume data wherever necessary
 4) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option**14**

- 1) A company only involved in E Commerce is called _____.
 a) brick and mortar b) click and mortar
 c) virtual organization d) B2B
- 2) What for IS & IT are used in Digital Enterprises?
 a) Research b) Boost employee productivity
 c) Customer support d) All of these
- 3) Take an odd man out - NEFT, IRCTC, RTGS, PayTM
 a) NEFT b) IRCTC
 c) RTGS d) PayTM
- 4) Which of below is a major disadvantage of a centralized database?
 a) Expensive b) Requires scheduling
 c) Causes delays d) All of these
- 5) OLAP is used for _____.
 a) decisions b) payment
 c) content management d) all of these
- 6) Elementary description of thing, events, activities and transactions is called _____.
 a) attributes b) features
 c) data d) all of these
- 7) What is not true about DBMS?
 a) it is software
 b) it is very costly always
 c) it acts as an interface between application program and physical data files
 d) it can update data
- 8) Who amongst below is a knowledge worker?
 a) teller in the bank
 b) billing person in the retail store
 c) chartered account in the firm
 d) none of these

- 9) Select appropriate sequence _____.
- a) database, data, knowledge, information
 - b) data, database, knowledge, information
 - c) data, database, information, knowledge
 - d) information, database, knowledge, data
- 10) Two types of decision support systems are _____ and _____.
- a) model driven, data driven
 - b) data based, information based
 - c) middle, upper
 - d) TPS, ERP
- 11) In _____ model, typically, the outcome of one phase acts as the input for the next phase sequentially.
- a) RAD
 - b) Waterfall
 - c) Prototyping
 - d) SDLC
- 12) Take odd man out - MS Project, MS Access, DB2, Oracle
- a) MS Project
 - b) MS Access
 - c) DB2
 - d) Oracle
- 13) A _____ is a product or outcome that is given to the client.
- a) milestone
 - b) SDLC
 - c) waterfall
 - d) none of these
- 14) As the cost of IS _____, it is substituted for labor, which is _____.
- a) increasing, increasing
 - b) decreasing, increasing
 - c) decreasing, decreasing
 - d) increasing, decreasing

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

SECTION – I

- Q.2 Solve Any Two** **12**
- a) Compare centralized and distributed databases.
 - b) To whom and how IT supports in enterprise?
 - c) With one suitable application discuss electronic content management.
- Q.3 Solve Any Four** **16**
- a) Discuss benefits of E commerce to organizations.
 - b) Evaluate data management problems and challenges.
 - c) Compare OLAP and data mining.
 - d) Describe any four models of e business.
 - e) Justify with example - IT flattens organization structure.

SECTION – II

- Q.4 Solve Any Two** **12**
- a) Explain economical impact of IS on organization.
 - b) Discuss how enterprise resource planning system is being implemented.
 - c) What are the features of modern organization? How IS helps modern organizations?
- Q.5 Solve Any Four** **16**
- a) Discuss pros and cons of waterfall SDLC model.
 - b) How IS and organization are related?
 - c) With suitable example explain de-skilling.
 - d) With suitable example explain employee privacy issue in modern organization.
 - e) With suitable example discuss project requirement specifications.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Assume data wherever necessary
 4) Figures to the right indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option**14**

- 1) Two types of decision support systems are _____ and _____.
 a) model driven, data driven
 b) data based, information based
 c) middle, upper
 d) TPS, ERP
- 2) In _____ model, typically, the outcome of one phase acts as the input for the next phase sequentially.
 a) RAD
 b) Waterfall
 c) Prototyping
 d) SDLC
- 3) Take odd man out - MS Project, MS Access, DB2, Oracle
 a) MS Project
 b) MS Access
 c) DB2
 d) Oracle
- 4) A _____ is a product or outcome that is given to the client.
 a) milestone
 b) SDLC
 c) waterfall
 d) none of these
- 5) As the cost of IS _____, it is substituted for labor, which is _____.
 a) increasing, increasing
 b) decreasing, increasing
 c) decreasing, decreasing
 d) increasing, decreasing
- 6) A company only involved in E Commerce is called _____.
 a) brick and mortar
 b) click and mortar
 c) virtual organization
 d) B2B
- 7) What for IS & IT are used in Digital Enterprises?
 a) Research
 b) Boost employee productivity
 c) Customer support
 d) All of these
- 8) Take an odd man out - NEFT, IRCTC, RTGS, PayTM
 a) NEFT
 b) IRCTC
 c) RTGS
 d) PayTM

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Information Technology and Management (BTN04513)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

SECTION – I

- Q.2 Solve Any Two** **12**
- a) Compare centralized and distributed databases.
 - b) To whom and how IT supports in enterprise?
 - c) With one suitable application discuss electronic content management.
- Q.3 Solve Any Four** **16**
- a) Discuss benefits of E commerce to organizations.
 - b) Evaluate data management problems and challenges.
 - c) Compare OLAP and data mining.
 - d) Describe any four models of e business.
 - e) Justify with example - IT flattens organization structure.

SECTION – II

- Q.4 Solve Any Two** **12**
- a) Explain economical impact of IS on organization.
 - b) Discuss how enterprise resource planning system is being implemented.
 - c) What are the features of modern organization? How IS helps modern organizations?
- Q.5 Solve Any Four** **16**
- a) Discuss pros and cons of waterfall SDLC model.
 - b) How IS and organization are related?
 - c) With suitable example explain de-skilling.
 - d) With suitable example explain employee privacy issue in modern organization.
 - e) With suitable example discuss project requirement specifications.

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) A positive cross elasticity of demand coefficient indicates that _____.
 - a) a product is an inferior good
 - b) a product is a normal good
 - c) two products are substitute goods
 - d) two products are complementary goods
- 2) Time series patterns that repeat themselves after a period of days or weeks are called _____.
 - a) random variation
 - b) trend
 - c) cycles
 - d) seasonality
- 3) In time series, which of the following cannot be predicted?
 - a) large increases in demand
 - b) technological trends
 - c) seasonal fluctuations
 - d) random fluctuations
- 4) Short run is a period of time over which at least one factor must _____.
 - a) Remain flexible
 - b) Remain fixed
 - c) Variable
 - d) None of the above
- 5) If the short-run average variable costs of production for a firm are rising, then this indicates that _____.
 - a) average total costs are at a maximum
 - b) average fixed costs are constant
 - c) marginal costs are above average variable costs
 - d) average variable costs are below average fixed costs
- 6) Perfectly competitive firms are price takers because _____.
 - a) each firm is very large
 - b) there are no good substitutes for their goods
 - c) many other firms produce identical products
 - d) their demand curves are downward sloping
- 7) The demand curve faced by a monopolistically competitive firm is _____.
 - a) perfectly elastic
 - b) elastic
 - c) unit elastic
 - d) inelastic

- 8) "Capitalism" refers to: _____.
- a) the use of markets
 - b) government ownership of capital goods
 - c) private ownership of capital goods
 - d) private ownership of homes & cars
- 9) Macroeconomics deals with _____.
- a) The behavior of firms
 - b) Economic aggregates
 - c) The activities of individual units
 - d) The behavior of the electronics industry
- 10) The study of inflation is part of _____.
- a) Normative economics
 - b) Macroeconomics
 - c) Microeconomics
 - d) Descriptive economics
- 11) Which of the following is a determinant of demand?
- a) the price of a substitute good
 - b) the price of a complement good
 - c) the price of the good next month
 - d) all of the above
- 12) The demand curve for a normal good shift leftward if income _____ or the expected future price _____.
- a) decreases; falls
 - b) increases; rises
 - c) increases; falls
 - d) decreases; rises
- 13) A surplus occurs when the price is _____.
- a) equal to the equilibrium price
 - b) greater than the equilibrium price
 - c) less than the equilibrium price
 - d) None of the above
- 14) If two goods are complements, then _____.
- a) the cross-price elasticity of demand will be negative
 - b) the cross-price elasticity of demand will be zero
 - c) the cross-price elasticity of demand will be positive
 - d) an increase in the price of one good will increase demand for the other

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Explain scope of managerial economics for business decision.
 - b) State the difference between Microeconomics and Macroeconomics.
 - c) Explain measuring values of market exchange.
 - d) Explain the concept Price ceilings and Price floors.
 - e) Explain the concept elasticity of demand in detail.
 - f) Explain the concept income elasticity of demand.
- Q.3 Solve any Two** **12**
- a) Explain economics contribution to managerial decision.
 - b) Explain cardinal and ordinal approach of consumer behavior.
 - c) Explain elasticities for nonlinear demand functions.

Section – II

- Q.4 Solve any Four.** **16**
- a) Describe Survey Methods for demand forecasting.
 - b) Explain linear Regression method for demand forecasting.
 - c) What is production? Explain the concept of production function.
 - d) Explain breakeven analysis. Also state the limitations of breakeven analysis.
 - e) What is market? Explain the various types of market.
 - f) Explain the concept supply side of market.
- Q.5 Solve any Two.** **12**
- a) State and explain the applications of Linear Programming Techniques.
 - b) Explain Market Structure. Also state the objectives of market structure.
 - c) Explain following costs of production:
 - i) Fixed and Variable Costs
 - ii) Total, Average, and Marginal Costs
 - iii) Short-Run and Long-Run Costs

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) "Capitalism" refers to: _____.
 - a) the use of markets
 - b) government ownership of capital goods
 - c) private ownership of capital goods
 - d) private ownership of homes & cars
- 2) Macroeconomics deals with _____.
 - a) The behavior of firms
 - b) Economic aggregates
 - c) The activities of individual units
 - d) The behavior of the electronics industry
- 3) The study of inflation is part of _____.

a) Normative economics	b) Macroeconomics
c) Microeconomics	d) Descriptive economics
- 4) Which of the following is a determinant of demand?
 - a) the price of a substitute good
 - b) the price of a complement good
 - c) the price of the good next month
 - d) all of the above
- 5) The demand curve for a normal good shift leftward if income _____ or the expected future price _____.

a) decreases; falls	b) increases; rises
c) increases; falls	d) decreases; rises
- 6) A surplus occurs when the price is _____.
 - a) equal to the equilibrium price
 - b) greater than the equilibrium price
 - c) less than the equilibrium price
 - d) None of the above

- 7) If two goods are complements, then _____.
- a) the cross-price elasticity of demand will be negative
 - b) the cross-price elasticity of demand will be zero
 - c) the cross-price elasticity of demand will be positive
 - d) an increase in the price of one good will increase demand for the other
- 8) A positive cross elasticity of demand coefficient indicates that _____.
- a) a product is an inferior good
 - b) a product is a normal good
 - c) two products are substitute goods
 - d) two products are complementary goods
- 9) Time series patterns that repeat themselves after a period of days or weeks are called _____.
- a) random variation
 - b) trend
 - c) cycles
 - d) seasonality
- 10) In time series, which of the following cannot be predicted?
- a) large increases in demand
 - b) technological trends
 - c) seasonal fluctuations
 - d) random fluctuations
- 11) Short run is a period of time over which at least one factor must _____.
- a) Remain flexible
 - b) Remain fixed
 - c) Variable
 - d) None of the above
- 12) If the short-run average variable costs of production for a firm are rising, then this indicates that _____.
- a) average total costs are at a maximum
 - b) average fixed costs are constant
 - c) marginal costs are above average variable costs
 - d) average variable costs are below average fixed costs
- 13) Perfectly competitive firms are price takers because _____.
- a) each firm is very large
 - b) there are no good substitutes for their goods
 - c) many other firms produce identical products
 - d) their demand curves are downward sloping
- 14) The demand curve faced by a monopolistically competitive firm is _____.
- a) perfectly elastic
 - b) elastic
 - c) unit elastic
 - d) inelastic

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Explain scope of managerial economics for business decision.
 - b) State the difference between Microeconomics and Macroeconomics.
 - c) Explain measuring values of market exchange.
 - d) Explain the concept Price ceilings and Price floors.
 - e) Explain the concept elasticity of demand in detail.
 - f) Explain the concept income elasticity of demand.
- Q.3 Solve any Two** **12**
- a) Explain economics contribution to managerial decision.
 - b) Explain cardinal and ordinal approach of consumer behavior.
 - c) Explain elasticities for nonlinear demand functions.

Section – II

- Q.4 Solve any Four.** **16**
- a) Describe Survey Methods for demand forecasting.
 - b) Explain linear Regression method for demand forecasting.
 - c) What is production? Explain the concept of production function.
 - d) Explain breakeven analysis. Also state the limitations of breakeven analysis.
 - e) What is market? Explain the various types of market.
 - f) Explain the concept supply side of market.
- Q.5 Solve any Two.** **12**
- a) State and explain the applications of Linear Programming Techniques.
 - b) Explain Market Structure. Also state the objectives of market structure.
 - c) Explain following costs of production:
 - i) Fixed and Variable Costs
 - ii) Total, Average, and Marginal Costs
 - iii) Short-Run and Long-Run Costs

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following is a determinant of demand?
 - a) the price of a substitute good
 - b) the price of a complement good
 - c) the price of the good next month
 - d) all of the above
- 2) The demand curve for a normal good shift leftward if income _____ or the expected future price _____.
 - a) decreases; falls
 - b) increases; rises
 - c) increases; falls
 - d) decreases; rises
- 3) A surplus occurs when the price is _____.
 - a) equal to the equilibrium price
 - b) greater than the equilibrium price
 - c) less than the equilibrium price
 - d) None of the above
- 4) If two goods are complements, then _____.
 - a) the cross-price elasticity of demand will be negative
 - b) the cross-price elasticity of demand will be zero
 - c) the cross-price elasticity of demand will be positive
 - d) an increase in the price of one good will increase demand for the other
- 5) A positive cross elasticity of demand coefficient indicates that _____.
 - a) a product is an inferior good
 - b) a product is a normal good
 - c) two products are substitute goods
 - d) two products are complementary goods
- 6) Time series patterns that repeat themselves after a period of days or weeks are called _____.
 - a) random variation
 - b) trend
 - c) cycles
 - d) seasonality
- 7) In time series, which of the following cannot be predicted?
 - a) large increases in demand
 - b) technological trends
 - c) seasonal fluctuations
 - d) random fluctuations

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Explain scope of managerial economics for business decision.
 - b) State the difference between Microeconomics and Macroeconomics.
 - c) Explain measuring values of market exchange.
 - d) Explain the concept Price ceilings and Price floors.
 - e) Explain the concept elasticity of demand in detail.
 - f) Explain the concept income elasticity of demand.
- Q.3 Solve any Two** **12**
- a) Explain economics contribution to managerial decision.
 - b) Explain cardinal and ordinal approach of consumer behavior.
 - c) Explain elasticities for nonlinear demand functions.

Section – II

- Q.4 Solve any Four.** **16**
- a) Describe Survey Methods for demand forecasting.
 - b) Explain linear Regression method for demand forecasting.
 - c) What is production? Explain the concept of production function.
 - d) Explain breakeven analysis. Also state the limitations of breakeven analysis.
 - e) What is market? Explain the various types of market.
 - f) Explain the concept supply side of market.
- Q.5 Solve any Two.** **12**
- a) State and explain the applications of Linear Programming Techniques.
 - b) Explain Market Structure. Also state the objectives of market structure.
 - c) Explain following costs of production:
 - i) Fixed and Variable Costs
 - ii) Total, Average, and Marginal Costs
 - iii) Short-Run and Long-Run Costs

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Perfectly competitive firms are price takers because _____.
 - a) each firm is very large
 - b) there are no good substitutes for their goods
 - c) many other firms produce identical products
 - d) their demand curves are downward sloping
- 2) The demand curve faced by a monopolistically competitive firm is _____.
 - a) perfectly elastic
 - b) elastic
 - c) unit elastic
 - d) inelastic
- 3) "Capitalism" refers to: _____.
 - a) the use of markets
 - b) government ownership of capital goods
 - c) private ownership of capital goods
 - d) private ownership of homes & cars
- 4) Macroeconomics deals with _____.
 - a) The behavior of firms
 - b) Economic aggregates
 - c) The activities of individual units
 - d) The behavior of the electronics industry
- 5) The study of inflation is part of _____.
 - a) Normative economics
 - b) Macroeconomics
 - c) Microeconomics
 - d) Descriptive economics
- 6) Which of the following is a determinant of demand?
 - a) the price of a substitute good
 - b) the price of a complement good
 - c) the price of the good next month
 - d) all of the above
- 7) The demand curve for a normal good shift leftward if income _____ or the expected future price _____.
 - a) decreases; falls
 - b) increases; rises
 - c) increases; falls
 - d) decreases; rises

- 8) A surplus occurs when the price is _____.
a) equal to the equilibrium price
b) greater than the equilibrium price
c) less than the equilibrium price
d) None of the above
- 9) If two goods are complements, then _____.
a) the cross-price elasticity of demand will be negative
b) the cross-price elasticity of demand will be zero
c) the cross-price elasticity of demand will be positive
d) an increase in the price of one good will increase demand for the other
- 10) A positive cross elasticity of demand coefficient indicates that _____.
a) a product is an inferior good
b) a product is a normal good
c) two products are substitute goods
d) two products are complementary goods
- 11) Time series patterns that repeat themselves after a period of days or weeks are called _____.
a) random variation
b) trend
c) cycles
d) seasonality
- 12) In time series, which of the following cannot be predicted?
a) large increases in demand
b) technological trends
c) seasonal fluctuations
d) random fluctuations
- 13) Short run is a period of time over which at least one factor must _____.
a) Remain flexible
b) Remain fixed
c) Variable
d) None of the above
- 14) If the short-run average variable costs of production for a firm are rising, then this indicates that _____.
a) average total costs are at a maximum
b) average fixed costs are constant
c) marginal costs are above average variable costs
d) average variable costs are below average fixed costs

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Managerial Economics (BTN04514)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Explain scope of managerial economics for business decision.
 - b) State the difference between Microeconomics and Macroeconomics.
 - c) Explain measuring values of market exchange.
 - d) Explain the concept Price ceilings and Price floors.
 - e) Explain the concept elasticity of demand in detail.
 - f) Explain the concept income elasticity of demand.
- Q.3 Solve any Two** **12**
- a) Explain economics contribution to managerial decision.
 - b) Explain cardinal and ordinal approach of consumer behavior.
 - c) Explain elasticities for nonlinear demand functions.

Section – II

- Q.4 Solve any Four.** **16**
- a) Describe Survey Methods for demand forecasting.
 - b) Explain linear Regression method for demand forecasting.
 - c) What is production? Explain the concept of production function.
 - d) Explain breakeven analysis. Also state the limitations of breakeven analysis.
 - e) What is market? Explain the various types of market.
 - f) Explain the concept supply side of market.
- Q.5 Solve any Two.** **12**
- a) State and explain the applications of Linear Programming Techniques.
 - b) Explain Market Structure. Also state the objectives of market structure.
 - c) Explain following costs of production:
 - i) Fixed and Variable Costs
 - ii) Total, Average, and Marginal Costs
 - iii) Short-Run and Long-Run Costs

Seat No.	
-------------	--

Set

P

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which is not one of the natures of ethics?

a) Focus on human values	b) Social work
c) Branch of philosophy	d) Applies moral principles
- 2) Which of the following is a basic definition of ethics?
 - a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 3) Which of the following does the term Corporate Social Responsibility relate to?

a) Ethical conduct	b) Environmental practice
c) Community investment	d) All of the above
- 4) What is meant by the phrase CSR?
 - a) Corporate Social Responsibility
 - b) Company Social Responsibility
 - c) Corporate Society Responsibility
 - d) Company Society Responsibility
- 5) Ethics should guide the technology towards _____.

a) Political justice	b) Cultural justice
c) Social justice	d) None of the above
- 6) The system that is used by firms to control and direct their operations and the operations of their employees is called _____.

a) Corporate Compliance	b) Corporate Governance
c) Corporate Control	d) Corporate Directive
- 7) The hand-of-government refers to the _____.
 - a) ability of the government to interfere in business negotiations
 - b) role of corporations to be profitable within the law
 - c) effect of national politics on business decisions
 - d) impact of changing government regulations

- 8) Which of the following relating to CSR theories is correct?
- a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organizations to manage community perceptions to survive
- 9) Which one of the following is not principle business ethics?
- a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 10) Codes of conduct and codes of ethics _____.
- a) are formal statements that describe what an organization expects of its employees
 - b) become necessary only after a company has been in legal trouble
 - c) are designed for top executives and managers, not regular employees
 - d) rarely become an effective component of the ethics and compliance program
- 11) Which of the following is not one the underlying principles of the corporate governance Combined Code of Practice?
- a) Integrity
 - b) Accountability
 - c) Openness
 - d) Acceptability
- 12) Most companies begin the process of establishing organizational ethics programs by developing _____.
- a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas
- 13) The four types of social responsibility include: _____.
- a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic
- 14) Global organizations must _____ their ethical guidelines so that employees know what is expected of them while working in a foreign location.
- a) clarify
 - b) provide
 - c) establish
 - d) broaden

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) What do you mean by business ethics? Explain the functions of business ethics.
- b) Explain 'Normative Ethics' in management.
- c) Mention the ethical issues that arise for managers.
- d) Explain the steps for setting standards of ethical behavior.
- e) Define corporate governance. Explain the principles of corporate governance.
- f) Explain the concept of corporate social responsibility (CSR).

Q.3 Solve any two **12**

- a) Discuss various principles of ethics and its implications in the modern business world.
- b) State the difficulties involved in ethical decision making. Bring out the guidelines which help ethical decision making.
- c) Explain the need of CSR in Indian business environment.

Section – II

Q.4 Solve any four **16**

- a) Explain ethical and social issues in marketing.
- b) State and explain ethical issues in the firm-employee relationship.
- c) Explain the relation between business ethics and environmental values.
- d) Explain the business ethics for pollution control.
- e) Explain moral significance of information technology to business.
- f) Explain the role of government in business ethics.

Q.5 Solve any two **12**

- a) Explain ethical challenges of globalization.
- b) State and explain the important parameters of environmental ethics.
- c) Explain the ethical issues arising in Information technology.

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following relating to CSR theories is correct?
 - a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organizations to manage community perceptions to survive
- 2) Which one of the following is not principle business ethics?
 - a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 3) Codes of conduct and codes of ethics _____.
 - a) are formal statements that describe what an organization expects of its employees
 - b) become necessary only after a company has been in legal trouble
 - c) are designed for top executives and managers, not regular employees
 - d) rarely become an effective component of the ethics and compliance program
- 4) Which of the following is not one the underlying principles of the corporate governance Combined Code of Practice?
 - a) Integrity
 - b) Accountability
 - c) Openness
 - d) Acceptability
- 5) Most companies begin the process of establishing organizational ethics programs by developing _____.
 - a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas
- 6) The four types of social responsibility include: _____.
 - a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic

- 7) Global organizations must _____ their ethical guidelines so that employees know what is expected of them while working in a foreign location.
- a) clarify
 - b) provide
 - c) establish
 - d) broaden
- 8) Which is not one of the natures of ethics?
- a) Focus on human values
 - b) Social work
 - c) Branch of philosophy
 - d) Applies moral principles
- 9) Which of the following is a basic definition of ethics?
- a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 10) Which of the following does the term Corporate Social Responsibility relate to?
- a) Ethical conduct
 - b) Environmental practice
 - c) Community investment
 - d) All of the above
- 11) What is meant by the phrase CSR?
- a) Corporate Social Responsibility
 - b) Company Social Responsibility
 - c) Corporate Society Responsibility
 - d) Company Society Responsibility
- 12) Ethics should guide the technology towards _____.
- a) Political justice
 - b) Cultural justice
 - c) Social justice
 - d) None of the above
- 13) The system that is used by firms to control and direct their operations and the operations of their employees is called _____.
- a) Corporate Compliance
 - b) Corporate Governance
 - c) Corporate Control
 - d) Corporate Directive
- 14) The hand-of-government refers to the _____.
- a) ability of the government to interfere in business negotiations
 - b) role of corporations to be profitable within the law
 - c) effect of national politics on business decisions
 - d) impact of changing government regulations

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) What do you mean by business ethics? Explain the functions of business ethics.
- b) Explain 'Normative Ethics' in management.
- c) Mention the ethical issues that arise for managers.
- d) Explain the steps for setting standards of ethical behavior.
- e) Define corporate governance. Explain the principles of corporate governance.
- f) Explain the concept of corporate social responsibility (CSR).

Q.3 Solve any two **12**

- a) Discuss various principles of ethics and its implications in the modern business world.
- b) State the difficulties involved in ethical decision making. Bring out the guidelines which help ethical decision making.
- c) Explain the need of CSR in Indian business environment.

Section – II

Q.4 Solve any four **16**

- a) Explain ethical and social issues in marketing.
- b) State and explain ethical issues in the firm-employee relationship.
- c) Explain the relation between business ethics and environmental values.
- d) Explain the business ethics for pollution control.
- e) Explain moral significance of information technology to business.
- f) Explain the role of government in business ethics.

Q.5 Solve any two **12**

- a) Explain ethical challenges of globalization.
- b) State and explain the important parameters of environmental ethics.
- c) Explain the ethical issues arising in Information technology.

Seat No.	
-------------	--

Set **R**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is not one the underlying principles of the corporate governance Combined Code of Practice?
 - a) Integrity
 - b) Accountability
 - c) Openness
 - d) Acceptability
- 2) Most companies begin the process of establishing organizational ethics programs by developing _____.
 - a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas
- 3) The four types of social responsibility include: _____.
 - a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic
- 4) Global organizations must _____ their ethical guidelines so that employees know what is expected of them while working in a foreign location.
 - a) clarify
 - b) provide
 - c) establish
 - d) broaden
- 5) Which is not one of the natures of ethics?
 - a) Focus on human values
 - b) Social work
 - c) Branch of philosophy
 - d) Applies moral principles
- 6) Which of the following is a basic definition of ethics?
 - a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 7) Which of the following does the term Corporate Social Responsibility relate to?
 - a) Ethical conduct
 - b) Environmental practice
 - c) Community investment
 - d) All of the above

- 8) What is meant by the phrase CSR?
a) Corporate Social Responsibility
b) Company Social Responsibility
c) Corporate Society Responsibility
d) Company Society Responsibility
- 9) Ethics should guide the technology towards _____.
a) Political justice
b) Cultural justice
c) Social justice
d) None of the above
- 10) The system that is used by firms to control and direct their operations and the operations of their employees is called _____.
a) Corporate Compliance
b) Corporate Governance
c) Corporate Control
d) Corporate Directive
- 11) The hand-of-government refers to the _____.
a) ability of the government to interfere in business negotiations
b) role of corporations to be profitable within the law
c) effect of national politics on business decisions
d) impact of changing government regulations
- 12) Which of the following relating to CSR theories is correct?
a) Institutional theory is based on the shareholder concept
b) Social contract is the key concept of legitimacy theory
c) The key concept of enlightened self-interest is stakeholder relations
d) Stakeholder theory requires organizations to manage community perceptions to survive
- 13) Which one of the following is not principle business ethics?
a) Principle of universality
b) Principle of humanity
c) Principle of autonomy
d) Principle of dissatisfaction
- 14) Codes of conduct and codes of ethics _____.
a) are formal statements that describe what an organization expects of its employees
b) become necessary only after a company has been in legal trouble
c) are designed for top executives and managers, not regular employees
d) rarely become an effective component of the ethics and compliance program

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) What do you mean by business ethics? Explain the functions of business ethics.
- b) Explain 'Normative Ethics' in management.
- c) Mention the ethical issues that arise for managers.
- d) Explain the steps for setting standards of ethical behavior.
- e) Define corporate governance. Explain the principles of corporate governance.
- f) Explain the concept of corporate social responsibility (CSR).

Q.3 Solve any two **12**

- a) Discuss various principles of ethics and its implications in the modern business world.
- b) State the difficulties involved in ethical decision making. Bring out the guidelines which help ethical decision making.
- c) Explain the need of CSR in Indian business environment.

Section – II

Q.4 Solve any four **16**

- a) Explain ethical and social issues in marketing.
- b) State and explain ethical issues in the firm-employee relationship.
- c) Explain the relation between business ethics and environmental values.
- d) Explain the business ethics for pollution control.
- e) Explain moral significance of information technology to business.
- f) Explain the role of government in business ethics.

Q.5 Solve any two **12**

- a) Explain ethical challenges of globalization.
- b) State and explain the important parameters of environmental ethics.
- c) Explain the ethical issues arising in Information technology.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The system that is used by firms to control and direct their operations and the operations of their employees is called _____.
 - a) Corporate Compliance
 - b) Corporate Governance
 - c) Corporate Control
 - d) Corporate Directive
- 2) The hand-of-government refers to the _____.
 - a) ability of the government to interfere in business negotiations
 - b) role of corporations to be profitable within the law
 - c) effect of national politics on business decisions
 - d) impact of changing government regulations
- 3) Which of the following relating to CSR theories is correct?
 - a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organizations to manage community perceptions to survive
- 4) Which one of the following is not principle business ethics?
 - a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 5) Codes of conduct and codes of ethics _____.
 - a) are formal statements that describe what an organization expects of its employees
 - b) become necessary only after a company has been in legal trouble
 - c) are designed for top executives and managers, not regular employees
 - d) rarely become an effective component of the ethics and compliance program
- 6) Which of the following is not one the underlying principles of the corporate governance Combined Code of Practice?
 - a) Integrity
 - b) Accountability
 - c) Openness
 - d) Acceptability

- 7) Most companies begin the process of establishing organizational ethics programs by developing _____.
- a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas
- 8) The four types of social responsibility include: _____.
- a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic
- 9) Global organizations must _____ their ethical guidelines so that employees know what is expected of them while working in a foreign location.
- a) clarify
 - b) provide
 - c) establish
 - d) broaden
- 10) Which is not one of the natures of ethics?
- a) Focus on human values
 - b) Social work
 - c) Branch of philosophy
 - d) Applies moral principles
- 11) Which of the following is a basic definition of ethics?
- a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 12) Which of the following does the term Corporate Social Responsibility relate to?
- a) Ethical conduct
 - b) Environmental practice
 - c) Community investment
 - d) All of the above
- 13) What is meant by the phrase CSR?
- a) Corporate Social Responsibility
 - b) Company Social Responsibility
 - c) Corporate Society Responsibility
 - d) Company Society Responsibility
- 14) Ethics should guide the technology towards _____.
- a) Political justice
 - b) Cultural justice
 - c) Social justice
 - d) None of the above

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Business Ethics (BTN04516)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) What do you mean by business ethics? Explain the functions of business ethics.
- b) Explain 'Normative Ethics' in management.
- c) Mention the ethical issues that arise for managers.
- d) Explain the steps for setting standards of ethical behavior.
- e) Define corporate governance. Explain the principles of corporate governance.
- f) Explain the concept of corporate social responsibility (CSR).

Q.3 Solve any two **12**

- a) Discuss various principles of ethics and its implications in the modern business world.
- b) State the difficulties involved in ethical decision making. Bring out the guidelines which help ethical decision making.
- c) Explain the need of CSR in Indian business environment.

Section – II

Q.4 Solve any four **16**

- a) Explain ethical and social issues in marketing.
- b) State and explain ethical issues in the firm-employee relationship.
- c) Explain the relation between business ethics and environmental values.
- d) Explain the business ethics for pollution control.
- e) Explain moral significance of information technology to business.
- f) Explain the role of government in business ethics.

Q.5 Solve any two **12**

- a) Explain ethical challenges of globalization.
- b) State and explain the important parameters of environmental ethics.
- c) Explain the ethical issues arising in Information technology.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) The main function of problem-solving agent is to _____.
 a) Solve the given problem and reach the goal
 b) Find out which sequence of action will get it to the goal state
 c) Both a & b
 d) None of the above
- 2) The "Father of Artificial Intelligence" is: _____.
 a) Alan Turing
 b) Charles Babbage
 c) John McCarthy
 d) None of the above
- 3) Which of the following are heuristic search algorithms?
 a) Best First Search Algorithm
 b) A* Search Algorithm
 c) Both a and b
 d) None of the above
- 4) Which of the following is the common language for Artificial Intelligence?
 a) Python
 b) Java
 c) Lisp
 d) PHP
- 5) Which of the following is a type of artificial intelligence agent?
 a) Learning AI Agent
 b) Simple Reflex AI Agent
 c) Goal-Based AI Agent
 d) All of the above
- 6) Which of the following are appropriate levels for a knowledge- based AI agent?
 a) Knowledge Level
 b) Logical Level
 c) Implementation Level
 d) All of the above
- 7) Decisions of Victory/Defeat are made in Game trees using which algorithm?
 a) DFS
 b) BFS
 c) Heuristic Search
 d) Min/Max Algorithm

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four questions. 16**
- a) Explain AO* Search Algorithm with example.
 - b) Define Artificial Intelligence and what are the Applications of AI.
 - c) State & explain different types of Agents.
 - d) Write Short note on ontologies in knowledge representation.
 - e) Differentiate Informed & Uninformed search.
- Q.3 Solve any two questions. 12**
- a) Explain the following search algorithm with example
 - 1) BFS
 - 2) A* Search
 - b) What is Knowledge based system? Explain First Order Logic in details.
 - c) State Different types of uniformed search algorithm. Explain any one in details along with advantages & disadvantages.

Section – II

- Q.4 Solve any four questions. 16**
- a) Write a note on Bayesian Network.
 - b) Explain in detail about conditional Probability.
 - c) What is elementary game theory? Explain with example.
 - d) What is Utility Theory? How it will become helpful for talking decision?
 - e) Explain in detail about streaming scenario in learning & knowledge acquisition.
- Q.5 Solve any two questions. 12**
- a) Explain Decision Tree in details with one example.
 - b) Explain Probability and Bayes' theorem along with example.
 - c) Explain in brief the scalability issues in learning & knowledge acquisition.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicate full marks.
 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What are the different types of Artificial Intelligence approaches?

a) Strong Approach	b) Weak Approach
c) Applied Approach	d) All of the above
- 2) How an AI agent does interact with its environment?

a) Using sensors and perceivers	b) Using only sensors
c) Using only perceivers	d) None of the above
- 3) The correct ways to solve a problem of state-space search are?

a) Forward from the initial state	b) Backward from the goal
c) Both a and b	d) None of the above
- 4) Out of the given options, which of the following algorithms uses the least memory?

a) DFS	b) BFS
c) Both a and b are the same	d) Cannot be compared
- 5) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the _____.

a) Boolean Algebra	b) Turing Test
c) Logarithm	d) Algorithm
- 6) How is a decision reached upon by a decision tree?

a) No test	b) Single test
c) Double test	d) Multiple sequences of test
- 7) A production rule consists of _____.

a) A set of Rule	b) A sequence of steps
c) Set of Rule & sequence of steps	d) Arbitrary representation to problem

- 8) The main function of problem-solving agent is to _____.
a) Solve the given problem and reach the goal
b) Find out which sequence of action will get it to the goal state
c) Both a & b
d) None of the above
- 9) The "Father of Artificial Intelligence" is: _____.
a) Alan Turing
b) Charles Babbage
c) John McCarthy
d) None of the above
- 10) Which of the following are heuristic search algorithms?
a) Best First Search Algorithm
b) A* Search Algorithm
c) Both a and b
d) None of the above
- 11) Which of the following is the common language for Artificial Intelligence?
a) Python
b) Java
c) Lisp
d) PHP
- 12) Which of the following is a type of artificial intelligence agent?
a) Learning AI Agent
b) Simple Reflex AI Agent
c) Goal-Based AI Agent
d) All of the above
- 13) Which of the following are appropriate levels for a knowledge-based AI agent?
a) Knowledge Level
b) Logical Level
c) Implementation Level
d) All of the above
- 14) Decisions of Victory/Defeat are made in Game trees using which algorithm?
a) DFS
b) BFS
c) Heuristic Search
d) Min/Max Algorithm

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four questions. 16**
- a) Explain AO* Search Algorithm with example.
 - b) Define Artificial Intelligence and what are the Applications of AI.
 - c) State & explain different types of Agents.
 - d) Write Short note on ontologies in knowledge representation.
 - e) Differentiate Informed & Uninformed search.
- Q.3 Solve any two questions. 12**
- a) Explain the following search algorithm with example
 - 1) BFS
 - 2) A* Search
 - b) What is Knowledge based system? Explain First Order Logic in details.
 - c) State Different types of uniformed search algorithm. Explain any one in details along with advantages & disadvantages.

Section – II

- Q.4 Solve any four questions. 16**
- a) Write a note on Bayesian Network.
 - b) Explain in detail about conditional Probability.
 - c) What is elementary game theory? Explain with example.
 - d) What is Utility Theory? How it will become helpful for talking decision?
 - e) Explain in detail about streaming scenario in learning & knowledge acquisition.
- Q.5 Solve any two questions. 12**
- a) Explain Decision Tree in details with one example.
 - b) Explain Probability and Bayes' theorem along with example.
 - c) Explain in brief the scalability issues in learning & knowledge acquisition.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Out of the given options, which of the following algorithms uses the least memory?

a) DFS	b) BFS
c) Both a and b are the same	d) Cannot be compared
- 2) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the _____.

a) Boolean Algebra	b) Turing Test
c) Logarithm	d) Algorithm
- 3) How is a decision reached upon by a decision tree?

a) No test	b) Single test
c) Double test	d) Multiple sequences of test
- 4) A production rule consists of _____.

a) A set of Rule	b) A sequence of steps
c) Set of Rule & sequence of steps	d) Arbitrary representation to problem
- 5) The main function of problem-solving agent is to _____.

a) Solve the given problem and reach the goal	b) Find out which sequence of action will get it to the goal state
c) Both a & b	d) None of the above
- 6) The "Father of Artificial Intelligence" is: _____.

a) Alan Turing	b) Charles Babbage
c) John McCarthy	d) None of the above
- 7) Which of the following are heuristic search algorithms?

a) Best First Search Algorithm	b) A* Search Algorithm
c) Both a and b	d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four questions. 16**
- a) Explain AO* Search Algorithm with example.
 - b) Define Artificial Intelligence and what are the Applications of AI.
 - c) State & explain different types of Agents.
 - d) Write Short note on ontologies in knowledge representation.
 - e) Differentiate Informed & Uninformed search.
- Q.3 Solve any two questions. 12**
- a) Explain the following search algorithm with example
 - 1) BFS
 - 2) A* Search
 - b) What is Knowledge based system? Explain First Order Logic in details.
 - c) State Different types of uniformed search algorithm. Explain any one in details along with advantages & disadvantages.

Section – II

- Q.4 Solve any four questions. 16**
- a) Write a note on Bayesian Network.
 - b) Explain in detail about conditional Probability.
 - c) What is elementary game theory? Explain with example.
 - d) What is Utility Theory? How it will become helpful for talking decision?
 - e) Explain in detail about streaming scenario in learning & knowledge acquisition.
- Q.5 Solve any two questions. 12**
- a) Explain Decision Tree in details with one example.
 - b) Explain Probability and Bayes' theorem along with example.
 - c) Explain in brief the scalability issues in learning & knowledge acquisition.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Which of the following are appropriate levels for a knowledge- based AI agent?

a) Knowledge Level	b) Logical Level
c) Implementation Level	d) All of the above
- 2) Decisions of Victory/Defeat are made in Game trees using which algorithm?

a) DFS	b) BFS
c) Heuristic Search	d) Min/Max Algorithm
- 3) What are the different types of Artificial Intelligence approaches?

a) Strong Approach	b) Weak Approach
c) Applied Approach	d) All of the above
- 4) How an AI agent does interact with its environment?

a) Using sensors and perceivers	b) Using only sensors
c) Using only perceivers	d) None of the above
- 5) The correct ways to solve a problem of state-space search are?

a) Forward from the initial state	b) Backward from the goal
c) Both a and b	d) None of the above
- 6) Out of the given options, which of the following algorithms uses the least memory?

a) DFS	b) BFS
c) Both a and b are the same	d) Cannot be compared
- 7) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the _____.

a) Boolean Algebra	b) Turing Test
c) Logarithm	d) Algorithm
- 8) How is a decision reached upon by a decision tree?

a) No test	b) Single test
c) Double test	d) Multiple sequences of test

- 9) A production rule consists of _____.
a) A set of Rule
b) A sequence of steps
c) Set of Rule & sequence of steps
d) Arbitrary representation to problem
- 10) The main function of problem-solving agent is to _____.
a) Solve the given problem and reach the goal
b) Find out which sequence of action will get it to the goal state
c) Both a & b
d) None of the above
- 11) The “Father of Artificial Intelligence” is: _____.
a) Alan Turing
b) Charles Babbage
c) John McCarthy
d) None of the above
- 12) Which of the following are heuristic search algorithms?
a) Best First Search Algorithm
b) A* Search Algorithm
c) Both a and b
d) None of the above
- 13) Which of the following is the common language for Artificial Intelligence?
a) Python
b) Java
c) Lisp
d) PHP
- 14) Which of the following is a type of artificial intelligence agent?
a) Learning AI Agent
b) Simple Reflex AI Agent
c) Goal-Based AI Agent
d) All of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Artificial Intelligence (BTN04517)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four questions. 16**
- a) Explain AO* Search Algorithm with example.
 - b) Define Artificial Intelligence and what are the Applications of AI.
 - c) State & explain different types of Agents.
 - d) Write Short note on ontologies in knowledge representation.
 - e) Differentiate Informed & Uninformed search.
- Q.3 Solve any two questions. 12**
- a) Explain the following search algorithm with example
 - 1) BFS
 - 2) A* Search
 - b) What is Knowledge based system? Explain First Order Logic in details.
 - c) State Different types of uniformed search algorithm. Explain any one in details along with advantages & disadvantages.

Section – II

- Q.4 Solve any four questions. 16**
- a) Write a note on Bayesian Network.
 - b) Explain in detail about conditional Probability.
 - c) What is elementary game theory? Explain with example.
 - d) What is Utility Theory? How it will become helpful for talking decision?
 - e) Explain in detail about streaming scenario in learning & knowledge acquisition.
- Q.5 Solve any two questions. 12**
- a) Explain Decision Tree in details with one example.
 - b) Explain Probability and Bayes' theorem along with example.
 - c) Explain in brief the scalability issues in learning & knowledge acquisition.

- 10)** In the clustering algorithm the distance between cluster centroid to each object is calculated using _____ method.
- a) Euclidean distance
 - b) Clustering distance
 - c) Central distance
 - d) Cluster
- 11)** Artificial Neural Network is _____ algorithm.
- a) bio-inspired
 - b) head-inspired
 - c) human-inspired
 - d) all of above
- 12)** Dimensionality Reduction Techniques such as _____.
- a) Principle Component Analysis
 - b) Sampling
 - c) Aggregation
 - d) All
- 13)** The histogram of oriented gradients (HOG) is a feature descriptor used in computer vision and image processing for the purpose of _____.
- a) object detection
 - b) object classification
 - c) object clustering
 - d) all of above
- 14)** Numerical measure of how alike two data objects are _____.
- a) Irrelevant
 - b) Dissimilarity
 - c) Similarity
 - d) All

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) How data quality management is done.
 - b) List down the steps of a PCA algorithm.
 - c) What do you understand by subset selection?
 - d) What are the limitations of LDA?
 - e) What is discretization and why it is used?
- Q.3 Attempt the following (Any Two) 12**
- a) Explain in detail the four scales of measurements.
 - b) Explain Linear Discriminant Analysis (LDA) method.
 - c) Explain the three types of normalization.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain the concept of Quantization or Binning.
 - b) Explain models stacking.
 - c) What are some Stopping Criteria for k-Means Clustering?
 - d) What are the connected layers?
 - e) What is Gradient Orientation Histogram?
- Q.5 Attempt the following (Any Two) 12**
- a) Define the following terms Data, Task, Models, Features, Scalar, Vector and Spaces.
 - b) Explain how deep neural networks learning the image features.
 - c) Explain the steps of k-Means Clustering Algorithm.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In standardization, the features will be rescaled with _____.
 a) Mean 0 and Variance 0 b) Mean 0 and Variance 1
 c) Mean 1 and Variance 0 d) Mean 1 and Variance 1
- 2) Which of the following algorithm is most sensitive to outliers?
 a) K-means clustering algorithm b) K-medians clustering algorithm
 c) K-modes clustering algorithm d) K-medoids clustering algorithm
- 3) In the clustering algorithm the distance between cluster centroid to each object is calculated using _____ method.
 a) Euclidean distance b) Clustering distance
 c) Central distance d) Cluster
- 4) Artificial Neural Network is _____ algorithm.
 a) bio-inspired b) head-inspired
 c) human-inspired d) all of above
- 5) Dimensionality Reduction Techniques such as _____.
 a) Principle Component Analysis b) Sampling
 c) Aggregation d) All
- 6) The histogram of oriented gradients (HOG) is a feature descriptor used in computer vision and image processing for the purpose of _____.
 a) object detection b) object classification
 c) object clustering d) all of above
- 7) Numerical measure of how alike two data objects are _____.
 a) Irrelevant b) Dissimilarity
 c) Similarity d) All
- 8) Data Analysis is a process of _____.
 a) inspecting data b) cleaning data
 c) transforming data d) all of the above

- 9) Examples of Data Quality problems _____.
- a) Outliers data
 - b) Missing data
 - c) Duplicate data
 - d) All of these
- 10) What are the different types of attributes?
- a) Nominal
 - b) Ordinal
 - c) Special
 - d) All of above
- 11) Under fitting happens due to _____.
- a) fewer number of features
 - b) data has a high variance
 - c) no use of regularization
 - d) all of the above
- 12) Which Method is used for encoding the categorical variables?
- a) Label Encoder
 - b) One Hot Encoder
 - c) Category Encoder
 - d) All of the above
- 13) _____ is a category, also called supervised machine learning methods in which the data is split on two parts.
- a) Classification
 - b) Clustering
 - c) Data mining
 - d) None of the mentioned above
- 14) What is the use of the bin/binnary data structure?
- a) to have efficient insertion
 - b) to have efficient deletion
 - c) to have efficient region query
 - d) to have efficient traversal

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) How data quality management is done.
 - b) List down the steps of a PCA algorithm.
 - c) What do you understand by subset selection?
 - d) What are the limitations of LDA?
 - e) What is discretization and why it is used?
- Q.3 Attempt the following (Any Two) 12**
- a) Explain in detail the four scales of measurements.
 - b) Explain Linear Discriminant Analysis (LDA) method.
 - c) Explain the three types of normalization.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain the concept of Quantization or Binning.
 - b) Explain models stacking.
 - c) What are some Stopping Criteria for k-Means Clustering?
 - d) What are the connected layers?
 - e) What is Gradient Orientation Histogram?
- Q.5 Attempt the following (Any Two) 12**
- a) Define the following terms Data, Task, Models, Features, Scalar, Vector and Spaces.
 - b) Explain how deep neural networks learning the image features.
 - c) Explain the steps of k-Means Clustering Algorithm.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Artificial Neural Network is _____ algorithm.
 - a) bio-inspired
 - b) head-inspired
 - c) human-inspired
 - d) all of above
- 2) Dimensionality Reduction Techniques such as _____.
 - a) Principle Component Analysis
 - b) Sampling
 - c) Aggregation
 - d) All
- 3) The histogram of oriented gradients (HOG) is a feature descriptor used in computer vision and image processing for the purpose of _____.
 - a) object detection
 - b) object classification
 - c) object clustering
 - d) all of above
- 4) Numerical measure of how alike two data objects are _____.
 - a) Irrelevant
 - b) Dissimilarity
 - c) Similarity
 - d) All
- 5) Data Analysis is a process of _____.
 - a) inspecting data
 - b) cleaning data
 - c) transforming data
 - d) all of the above
- 6) Examples of Data Quality problems _____.
 - a) Outliers data
 - b) Missing data
 - c) Duplicate data
 - d) All of these
- 7) What are the different types of attributes?
 - a) Nominal
 - b) Ordinal
 - c) Special
 - d) All of above
- 8) Under fitting happens due to _____.
 - a) fewer number of features
 - b) data has a high variance
 - c) no use of regularization
 - d) all of the above
- 9) Which Method is used for encoding the categorical variables?
 - a) Label Encoder
 - b) One Hot Encoder
 - c) Category Encoder
 - d) All of the above

- 10) _____ is a category, also called supervised machine learning methods in which the data is split on two parts.
- a) Classification
 - b) Clustering
 - c) Data mining
 - d) None of the mentioned above
- 11) What is the use of the bin/binary data structure?
- a) to have efficient insertion
 - b) to have efficient deletion
 - c) to have efficient region query
 - d) to have efficient traversal
- 12) In standardization, the features will be rescaled with _____.
- a) Mean 0 and Variance 0
 - b) Mean 0 and Variance 1
 - c) Mean 1 and Variance 0
 - d) Mean 1 and Variance 1
- 13) Which of the following algorithm is most sensitive to outliers?
- a) K-means clustering algorithm
 - b) K-medians clustering algorithm
 - c) K-modes clustering algorithm
 - d) K-medoids clustering algorithm
- 14) In the clustering algorithm the distance between cluster centroid to each object is calculated using _____ method.
- a) Euclidean distance
 - b) Clustering distance
 - c) Central distance
 - d) Cluster

Seat No.	
-----------------	--

**T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) How data quality management is done.
 - b) List down the steps of a PCA algorithm.
 - c) What do you understand by subset selection?
 - d) What are the limitations of LDA?
 - e) What is discretization and why it is used?
- Q.3 Attempt the following (Any Two) 12**
- a) Explain in detail the four scales of measurements.
 - b) Explain Linear Discriminant Analysis (LDA) method.
 - c) Explain the three types of normalization.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain the concept of Quantization or Binning.
 - b) Explain models stacking.
 - c) What are some Stopping Criteria for k-Means Clustering?
 - d) What are the connected layers?
 - e) What is Gradient Orientation Histogram?
- Q.5 Attempt the following (Any Two) 12**
- a) Define the following terms Data, Task, Models, Features, Scalar, Vector and Spaces.
 - b) Explain how deep neural networks learning the image features.
 - c) Explain the steps of k-Means Clustering Algorithm.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is a category, also called supervised machine learning methods in which the data is split on two parts.
 - a) Classification
 - b) Clustering
 - c) Data mining
 - d) None of the mentioned above
- 2) What is the use of the bin/binnary data structure?
 - a) to have efficient insertion
 - b) to have efficient deletion
 - c) to have efficient region query
 - d) to have efficient traversal
- 3) In standardization, the features will be rescaled with _____.
 - a) Mean 0 and Variance 0
 - b) Mean 0 and Variance 1
 - c) Mean 1 and Variance 0
 - d) Mean 1 and Variance 1
- 4) Which of the following algorithm is most sensitive to outliers?
 - a) K-means clustering algorithm
 - b) K-medians clustering algorithm
 - c) K-modes clustering algorithm
 - d) K-medoids clustering algorithm
- 5) In the clustering algorithm the distance between cluster centroid to each object is calculated using _____ method.
 - a) Euclidean distance
 - b) Clustering distance
 - c) Central distance
 - d) Cluster
- 6) Artificial Neural Network is _____ algorithm.
 - a) bio-inspired
 - b) head-inspired
 - c) human-inspired
 - d) all of above
- 7) Dimensionality Reduction Techniques such as _____.
 - a) Principle Component Analysis
 - b) Sampling
 - c) Aggregation
 - d) All
- 8) The histogram of oriented gradients (HOG) is a feature descriptor used in computer vision and image processing for the purpose of _____.
 - a) object detection
 - b) object classification
 - c) object clustering
 - d) all of above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Processing & Feature Engineering (BTN04518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) How data quality management is done.
 - b) List down the steps of a PCA algorithm.
 - c) What do you understand by subset selection?
 - d) What are the limitations of LDA?
 - e) What is discretization and why it is used?
- Q.3 Attempt the following (Any Two) 12**
- a) Explain in detail the four scales of measurements.
 - b) Explain Linear Discriminant Analysis (LDA) method.
 - c) Explain the three types of normalization.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain the concept of Quantization or Binning.
 - b) Explain models stacking.
 - c) What are some Stopping Criteria for k-Means Clustering?
 - d) What are the connected layers?
 - e) What is Gradient Orientation Histogram?
- Q.5 Attempt the following (Any Two) 12**
- a) Define the following terms Data, Task, Models, Features, Scalar, Vector and Spaces.
 - b) Explain how deep neural networks learning the image features.
 - c) Explain the steps of k-Means Clustering Algorithm.

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the primary focus of Living on the edge in the context of data-driven edge with machine learning?
 - a) Managing cloud infrastructure
 - b) Bringing machine learning to the edge
 - c) Developing IoT devices
 - d) Optimizing data storage
- 2) Which of the following is NOT mentioned as a tool to get the job done in the data-driven edge environment?
 - a) IoT Greengrass
 - b) Stream Manager
 - c) TensorFlow
 - d) Apache Kafka
- 3) What is emphasized as a demand for smart home and industrial IoT?
 - a) Complexity reduction
 - b) Centralized control
 - c) Increased latency
 - d) Limited connectivity
- 4) What is IoT Greengrass primarily used for in edge ML solutions?
 - a) Data visualization
 - b) Edge device management
 - c) Cloud storage
 - d) Machine learning model training
- 5) What is the significance of checking compatibility with IoT Device Tester?
 - a) Ensures compatibility with cloud platforms
 - b) Verifies adherence to IoT standards
 - c) Tests machine learning algorithms
 - d) Evaluates network bandwidth requirements
- 6) Which aspect is NOT part of exploring the topology of the edge?
 - a) Understanding network architecture
 - b) Identifying edge computing devices
 - c) Reviewing machine learning algorithms
 - d) Analyzing data flow patterns

- 7) What is a primary concern regarding security at the edge?
- a) Network bandwidth optimization
 - b) Data encryption and integrity
 - c) Device compatibility with cloud services
 - d) Machine learning model complexity
- 8) What is the first step in connecting a sensing device at the edge?
- a) Configuring cloud synchronization
 - b) Installing IoT Greengrass
 - c) Connecting to a power source
 - d) Setting up machine learning models
- 9) What is a key advantage of creating and deploying remotely in edge computing?
- a) Minimizing network latency
 - b) Centralizing data processing
 - c) Enhancing cloud security measures
 - d) Optimizing machine learning model training
- 10) Where are logs typically stored in the cloud in edge computing environments?
- a) Local edge devices
 - b) Cloud storage services
 - c) IoT Greengrass
 - d) Machine learning libraries
- 11) What is the purpose of defining data models for IoT workloads?
- a) Optimizing cloud storage utilization
 - b) Ensuring interoperability between devices
 - c) Enhancing machine learning model accuracy
 - d) Centralizing data processing
- 12) Which factor is NOT considered when designing data patterns for the edge?
- a) Network bandwidth
 - b) Data consistency
 - c) Edge device compatibility
 - d) Cloud storage capacity
- 13) How does Stream Manager contribute to data ingestion and streaming?
- a) By optimizing machine learning model training
 - b) By ensuring data consistency and integrity
 - c) By automating device management tasks
 - d) By facilitating real-time data processing
- 14) What is the main objective of building data orchestration workflows on the edge?
- a) Minimizing cloud storage costs
 - b) Enhancing machine learning model training
 - c) Optimizing data processing efficiency
 - d) Centralizing data analytics

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate.
3) Assume suitable data if required.

Section – I

Q.2 Attempt the following (Any Three) 12

- Discuss the significance of bringing machine learning to the edge in terms of data privacy and security.
- Discuss the challenges and advantages of deploying edge components remotely in edge computing.
- Explain the challenges and strategies associated with ensuring security at the edge in IoT environments.
- Evaluate the challenges associated with implementing edge ML solutions in real-world environments.

Q.3 Attempt the following (Any Two) 16

- Evaluate the impact of IoT Greengrass on optimizing data transmission to the cloud.
- Explain the importance of device connectivity in enhancing the functionality of edge computing solutions.
- Evaluate the impact of deploying ML models at the edge on enhancing real-time decision-making.

Section – II

Q.4 Attempt the following (Any Three) 12

- Analyze the impact of remote deployment on the scalability and efficiency of edge computing solutions.
- Discuss the implications of storing logs in the cloud for optimizing data analysis and troubleshooting.
- Evaluate the impact of streaming from the edge to a data lake on the cloud for enabling advanced analytics and decision-making processes.
- Discuss the significance of designing data flow patterns on the cloud for efficient data processing and consumption in IoT environments and their implications for real-time analytics.

Q.5 Attempt the following. (Any Two)

- a) Evaluate the role of designing data patterns for optimizing data flow in edge computing environments and analyze their impact on data transmission efficiency.
- b) Discuss the challenges and advantages of building data orchestration workflows on edge for enhancing real-time data processing capabilities and system reliability.
- c) Analyze the role of cloud computing in facilitating efficient data processing and consumption in IoT deployments and its impact on system performance and reliability.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the first step in connecting a sensing device at the edge?
 - a) Configuring cloud synchronization
 - b) Installing IoT Greengrass
 - c) Connecting to a power source
 - d) Setting up machine learning models
- 2) What is a key advantage of creating and deploying remotely in edge computing?
 - a) Minimizing network latency
 - b) Centralizing data processing
 - c) Enhancing cloud security measures
 - d) Optimizing machine learning model training
- 3) Where are logs typically stored in the cloud in edge computing environments?

a) Local edge devices	b) Cloud storage services
c) IoT Greengrass	d) Machine learning libraries
- 4) What is the purpose of defining data models for IoT workloads?
 - a) Optimizing cloud storage utilization
 - b) Ensuring interoperability between devices
 - c) Enhancing machine learning model accuracy
 - d) Centralizing data processing
- 5) Which factor is NOT considered when designing data patterns for the edge?

a) Network bandwidth	b) Data consistency
c) Edge device compatibility	d) Cloud storage capacity
- 6) How does Stream Manager contribute to data ingestion and streaming?
 - a) By optimizing machine learning model training
 - b) By ensuring data consistency and integrity
 - c) By automating device management tasks
 - d) By facilitating real-time data processing

- 7) What is the main objective of building data orchestration workflows on the edge?
- Minimizing cloud storage costs
 - Enhancing machine learning model training
 - Optimizing data processing efficiency
 - Centralizing data analytics
- 8) What is the primary focus of Living on the edge in the context of data-driven edge with machine learning?
- Managing cloud infrastructure
 - Bringing machine learning to the edge
 - Developing IoT devices
 - Optimizing data storage
- 9) Which of the following is NOT mentioned as a tool to get the job done in the data-driven edge environment?
- IoT Greengrass
 - Stream Manager
 - TensorFlow
 - Apache Kafka
- 10) What is emphasized as a demand for smart home and industrial IoT?
- Complexity reduction
 - Centralized control
 - Increased latency
 - Limited connectivity
- 11) What is IoT Greengrass primarily used for in edge ML solutions?
- Data visualization
 - Edge device management
 - Cloud storage
 - Machine learning model training
- 12) What is the significance of checking compatibility with IoT Device Tester?
- Ensures compatibility with cloud platforms
 - Verifies adherence to IoT standards
 - Tests machine learning algorithms
 - Evaluates network bandwidth requirements
- 13) Which aspect is NOT part of exploring the topology of the edge?
- Understanding network architecture
 - Identifying edge computing devices
 - Reviewing machine learning algorithms
 - Analyzing data flow patterns
- 14) What is a primary concern regarding security at the edge?
- Network bandwidth optimization
 - Data encryption and integrity
 - Device compatibility with cloud services
 - Machine learning model complexity

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate.
3) Assume suitable data if required.

Section – I

Q.2 Attempt the following (Any Three) 12

- Discuss the significance of bringing machine learning to the edge in terms of data privacy and security.
- Discuss the challenges and advantages of deploying edge components remotely in edge computing.
- Explain the challenges and strategies associated with ensuring security at the edge in IoT environments.
- Evaluate the challenges associated with implementing edge ML solutions in real-world environments.

Q.3 Attempt the following (Any Two) 16

- Evaluate the impact of IoT Greengrass on optimizing data transmission to the cloud.
- Explain the importance of device connectivity in enhancing the functionality of edge computing solutions.
- Evaluate the impact of deploying ML models at the edge on enhancing real-time decision-making.

Section – II

Q.4 Attempt the following (Any Three) 12

- Analyze the impact of remote deployment on the scalability and efficiency of edge computing solutions.
- Discuss the implications of storing logs in the cloud for optimizing data analysis and troubleshooting.
- Evaluate the impact of streaming from the edge to a data lake on the cloud for enabling advanced analytics and decision-making processes.
- Discuss the significance of designing data flow patterns on the cloud for efficient data processing and consumption in IoT environments and their implications for real-time analytics.

Q.5 Attempt the following. (Any Two)

- a) Evaluate the role of designing data patterns for optimizing data flow in edge computing environments and analyze their impact on data transmission efficiency.
- b) Discuss the challenges and advantages of building data orchestration workflows on edge for enhancing real-time data processing capabilities and system reliability.
- c) Analyze the role of cloud computing in facilitating efficient data processing and consumption in IoT deployments and its impact on system performance and reliability.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the purpose of defining data models for IoT workloads?
 - a) Optimizing cloud storage utilization
 - b) Ensuring interoperability between devices
 - c) Enhancing machine learning model accuracy
 - d) Centralizing data processing
- 2) Which factor is NOT considered when designing data patterns for the edge?
 - a) Network bandwidth
 - b) Data consistency
 - c) Edge device compatibility
 - d) Cloud storage capacity
- 3) How does Stream Manager contribute to data ingestion and streaming?
 - a) By optimizing machine learning model training
 - b) By ensuring data consistency and integrity
 - c) By automating device management tasks
 - d) By facilitating real-time data processing
- 4) What is the main objective of building data orchestration workflows on the edge?
 - a) Minimizing cloud storage costs
 - b) Enhancing machine learning model training
 - c) Optimizing data processing efficiency
 - d) Centralizing data analytics
- 5) What is the primary focus of Living on the edge in the context of data-driven edge with machine learning?
 - a) Managing cloud infrastructure
 - b) Bringing machine learning to the edge
 - c) Developing IoT devices
 - d) Optimizing data storage
- 6) Which of the following is NOT mentioned as a tool to get the job done in the data-driven edge environment?
 - a) IoT Greengrass
 - b) Stream Manager
 - c) TensorFlow
 - d) Apache Kafka

- 7) What is emphasized as a demand for smart home and industrial IoT?
- a) Complexity reduction
 - b) Centralized control
 - c) Increased latency
 - d) Limited connectivity
- 8) What is IoT Greengrass primarily used for in edge ML solutions?
- a) Data visualization
 - b) Edge device management
 - c) Cloud storage
 - d) Machine learning model training
- 9) What is the significance of checking compatibility with IoT Device Tester?
- a) Ensures compatibility with cloud platforms
 - b) Verifies adherence to IoT standards
 - c) Tests machine learning algorithms
 - d) Evaluates network bandwidth requirements
- 10) Which aspect is NOT part of exploring the topology of the edge?
- a) Understanding network architecture
 - b) Identifying edge computing devices
 - c) Reviewing machine learning algorithms
 - d) Analyzing data flow patterns
- 11) What is a primary concern regarding security at the edge?
- a) Network bandwidth optimization
 - b) Data encryption and integrity
 - c) Device compatibility with cloud services
 - d) Machine learning model complexity
- 12) What is the first step in connecting a sensing device at the edge?
- a) Configuring cloud synchronization
 - b) Installing IoT Greengrass
 - c) Connecting to a power source
 - d) Setting up machine learning models
- 13) What is a key advantage of creating and deploying remotely in edge computing?
- a) Minimizing network latency
 - b) Centralizing data processing
 - c) Enhancing cloud security measures
 - d) Optimizing machine learning model training
- 14) Where are logs typically stored in the cloud in edge computing environments?
- a) Local edge devices
 - b) Cloud storage services
 - c) IoT Greengrass
 - d) Machine learning libraries

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate.
3) Assume suitable data if required.

Section – I

Q.2 Attempt the following (Any Three) 12

- Discuss the significance of bringing machine learning to the edge in terms of data privacy and security.
- Discuss the challenges and advantages of deploying edge components remotely in edge computing.
- Explain the challenges and strategies associated with ensuring security at the edge in IoT environments.
- Evaluate the challenges associated with implementing edge ML solutions in real-world environments.

Q.3 Attempt the following (Any Two) 16

- Evaluate the impact of IoT Greengrass on optimizing data transmission to the cloud.
- Explain the importance of device connectivity in enhancing the functionality of edge computing solutions.
- Evaluate the impact of deploying ML models at the edge on enhancing real-time decision-making.

Section – II

Q.4 Attempt the following (Any Three) 12

- Analyze the impact of remote deployment on the scalability and efficiency of edge computing solutions.
- Discuss the implications of storing logs in the cloud for optimizing data analysis and troubleshooting.
- Evaluate the impact of streaming from the edge to a data lake on the cloud for enabling advanced analytics and decision-making processes.
- Discuss the significance of designing data flow patterns on the cloud for efficient data processing and consumption in IoT environments and their implications for real-time analytics.

Q.5 Attempt the following. (Any Two)

- a) Evaluate the role of designing data patterns for optimizing data flow in edge computing environments and analyze their impact on data transmission efficiency.
- b) Discuss the challenges and advantages of building data orchestration workflows on edge for enhancing real-time data processing capabilities and system reliability.
- c) Analyze the role of cloud computing in facilitating efficient data processing and consumption in IoT deployments and its impact on system performance and reliability.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which aspect is NOT part of exploring the topology of the edge?
 - a) Understanding network architecture
 - b) Identifying edge computing devices
 - c) Reviewing machine learning algorithms
 - d) Analyzing data flow patterns
- 2) What is a primary concern regarding security at the edge?
 - a) Network bandwidth optimization
 - b) Data encryption and integrity
 - c) Device compatibility with cloud services
 - d) Machine learning model complexity
- 3) What is the first step in connecting a sensing device at the edge?
 - a) Configuring cloud synchronization
 - b) Installing IoT Greengrass
 - c) Connecting to a power source
 - d) Setting up machine learning models
- 4) What is a key advantage of creating and deploying remotely in edge computing?
 - a) Minimizing network latency
 - b) Centralizing data processing
 - c) Enhancing cloud security measures
 - d) Optimizing machine learning model training
- 5) Where are logs typically stored in the cloud in edge computing environments?

a) Local edge devices	b) Cloud storage services
c) IoT Greengrass	d) Machine learning libraries
- 6) What is the purpose of defining data models for IoT workloads?
 - a) Optimizing cloud storage utilization
 - b) Ensuring interoperability between devices
 - c) Enhancing machine learning model accuracy
 - d) Centralizing data processing

- 7) Which factor is NOT considered when designing data patterns for the edge?
- a) Network bandwidth
 - b) Data consistency
 - c) Edge device compatibility
 - d) Cloud storage capacity
- 8) How does Stream Manager contribute to data ingestion and streaming?
- a) By optimizing machine learning model training
 - b) By ensuring data consistency and integrity
 - c) By automating device management tasks
 - d) By facilitating real-time data processing
- 9) What is the main objective of building data orchestration workflows on the edge?
- a) Minimizing cloud storage costs
 - b) Enhancing machine learning model training
 - c) Optimizing data processing efficiency
 - d) Centralizing data analytics
- 10) What is the primary focus of Living on the edge in the context of data-driven edge with machine learning?
- a) Managing cloud infrastructure
 - b) Bringing machine learning to the edge
 - c) Developing IoT devices
 - d) Optimizing data storage
- 11) Which of the following is NOT mentioned as a tool to get the job done in the data-driven edge environment?
- a) IoT Greengrass
 - b) Stream Manager
 - c) TensorFlow
 - d) Apache Kafka
- 12) What is emphasized as a demand for smart home and industrial IoT?
- a) Complexity reduction
 - b) Centralized control
 - c) Increased latency
 - d) Limited connectivity
- 13) What is IoT Greengrass primarily used for in edge ML solutions?
- a) Data visualization
 - b) Edge device management
 - c) Cloud storage
 - d) Machine learning model training
- 14) What is the significance of checking compatibility with IoT Device Tester?
- a) Ensures compatibility with cloud platforms
 - b) Verifies adherence to IoT standards
 - c) Tests machine learning algorithms
 - d) Evaluates network bandwidth requirements

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Industrial IoT (BTN04519)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate.
3) Assume suitable data if required.

Section – I

Q.2 Attempt the following (Any Three) 12

- Discuss the significance of bringing machine learning to the edge in terms of data privacy and security.
- Discuss the challenges and advantages of deploying edge components remotely in edge computing.
- Explain the challenges and strategies associated with ensuring security at the edge in IoT environments.
- Evaluate the challenges associated with implementing edge ML solutions in real-world environments.

Q.3 Attempt the following (Any Two) 16

- Evaluate the impact of IoT Greengrass on optimizing data transmission to the cloud.
- Explain the importance of device connectivity in enhancing the functionality of edge computing solutions.
- Evaluate the impact of deploying ML models at the edge on enhancing real-time decision-making.

Section – II

Q.4 Attempt the following (Any Three) 12

- Analyze the impact of remote deployment on the scalability and efficiency of edge computing solutions.
- Discuss the implications of storing logs in the cloud for optimizing data analysis and troubleshooting.
- Evaluate the impact of streaming from the edge to a data lake on the cloud for enabling advanced analytics and decision-making processes.
- Discuss the significance of designing data flow patterns on the cloud for efficient data processing and consumption in IoT environments and their implications for real-time analytics.

Q.5 Attempt the following. (Any Two)

- a) Evaluate the role of designing data patterns for optimizing data flow in edge computing environments and analyze their impact on data transmission efficiency.
- b) Discuss the challenges and advantages of building data orchestration workflows on edge for enhancing real-time data processing capabilities and system reliability.
- c) Analyze the role of cloud computing in facilitating efficient data processing and consumption in IoT deployments and its impact on system performance and reliability.

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?
 - a) Adam Smith
 - b) Alfred Marshall
 - c) Lionel Robbins
 - d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.
 - a) General equilibrium
 - b) Partial equilibrium
 - c) Zero equilibrium
 - d) Pareto efficiency
- 3) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA

- 8) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9) Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10) _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.
 - a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy
- 6) Who gives a welfare definition of economics?
 - a) Adam Smith
 - b) Alfred Marshall
 - c) Lionel Robbins
 - d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.
 - a) General equilibrium
 - b) Partial equilibrium
 - c) Zero equilibrium
 - d) Pareto efficiency

- 8)** Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9)** Macroeconomic theory deals with _____.
- a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 10)** Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 a) Socialism
 b) Capitalism
 c) A place where goods are traded
 d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.
 a) Cultural Values
 b) Society
 c) Technology
 d) Economy
- 3) Who gives a welfare definition of economics?
 a) Adam Smith
 b) Alfred Marshall
 c) Lionel Robbins
 d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.
 a) General equilibrium
 b) Partial equilibrium
 c) Zero equilibrium
 d) Pareto efficiency
- 5) Who is known as father of economics?
 a) Adam Smith
 b) Prof. A. Samuelson
 c) Alfred Marshall
 d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 a) The behavior of firms
 b) The activities of individual units
 c) Economic aggregates
 d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 a) Perfect competition
 b) Oligopoly
 c) Monopolistic competition
 d) Monopoly

- 8) Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9) Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Economics (BTN04506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN04507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?

a) 35 years	b) 25 years
c) 20 years	d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.

a) Ethical value	b) Moral value
c) Social value	d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 4) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 5) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 6) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 7) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights

- 8) In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9) The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10) All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN04507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN04507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN04507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

- 8) In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9) Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10) In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN04507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN04507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?
 - a) Inventor
 - b) Patent Attorney
 - c) Assignee
 - d) Patent Searcher
- 2) The following can be patented _____.
 - a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?
 - a) Trade secrets
 - b) Trademarks
 - c) Home loans
 - d) Copyrights
- 6) In which article is intellectual property rights outlined?
 - a) Article 15
 - b) Article 27
 - c) Article 13
 - d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.
 - a) 1856
 - b) 1880
 - c) 1905
 - d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN04507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Introduction to Sociology (BTN04508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber
- 2) Which of the following is a community?
 - a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers
- 3) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 4) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 5) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 6) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 7) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 8) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 9) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

Set P**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024****ELECTRONICS ENGINEERING****Introduction to Sociology (BTN04508)**

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Introduction to Sociology (BTN04508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 2) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 3) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 4) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 5) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 6) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 7) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 8) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 9) What is the base of social structure?

a) polity	b) government
c) economy	d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024

ELECTRONICS ENGINEERING

Introduction to Sociology (BTN04508)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Introduction to Sociology (BTN04508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024

ELECTRONICS ENGINEERING

Introduction to Sociology (BTN04508)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Introduction to Sociology (BTN04508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 2) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 3) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 4) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 5) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 6) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 7) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 8) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 9) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

Set

S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024**ELECTRONICS ENGINEERING****Introduction to Sociology (BTN04508)**

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) When a task appears overwhelming, it is best to _____.
 a) Put it aside till later
 b) Drink alcohol to relax
 c) Break it down into smaller task
 d) Avoid the task
- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 a) Draw tight
 b) Stimulus
 c) Force
 d) Attitude
- 3) Which of the following statements is true?
 a) The stress response is nonspecific
 b) Different kinds of stressors produce exactly the same response
 c) Different people respond to the same stressor differently
 d) All of the above
- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 a) When he is over the age of fifty
 b) When he expects a positive outcome
 c) When he thinks he does not have control over the situation
 d) When he has a good social support network
- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 a) Physical symptoms of stress
 b) Behavioral symptoms of stress
 c) Emotional symptoms of stress
 d) Cognitive symptoms of stress
- 6) Anxiety can cause the following moods _____.
 a) Irritable
 b) Nervous
 c) Anxious
 d) All of the above
- 7) Which of the following are the physical symptoms of anxiety?
 a) Racing heart
 b) Sweaty palms
 c) Flushed cheeks
 d) All of the above

- 8)** Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9)** Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10)** Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set

R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.**10**

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Stress and Coping (BTN04509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Professional Ethics & Human Value (BTN04510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 **Write short notes on any four.** **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Professional Ethics & Human Value (BTN04510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Professional Ethics & Human Value (BTN04510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 **Write short notes on any four.** **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Professional Ethics & Human Value (BTN04510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 2) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 3) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 4) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 5) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 6) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 7) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 8) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these

- 9) Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10) Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Professional Ethics & Human Value (BTN04510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

- 8) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9) Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10) One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Professional Ethics & Human Value (BTN04510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Draw neat diagrams.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Network device HUB is _____ layer device.
 - a) Physical
 - b) Data Link
 - c) Network
 - d) Application
- 2) The MAC id 06:12:EA:4F:30:98 is _____ type.
 - a) Unicast
 - b) Multicast
 - c) Broadcast
 - d) None of these
- 3) The ARQ stands for _____.
 - a) All Repeat Queue
 - b) Automatic Repeat Request
 - c) Automatic Resolve Question
 - d) None of these
- 4) Physical or logical arrangement of network is _____.
 - a) Topology
 - b) Routing
 - c) Group
 - d) None of these
- 5) Error detection at the data link level is achieved by _____.
 - a) Bit stuffing
 - b) CRC
 - c) Frame formation
 - d) Equalization
- 6) The maximum throughput for pure ALOHA is _____ percent.
 - a) 12.2
 - b) 18.4
 - c) 36.8
 - d) None of these
- 7) The network address (MAC) or Physical address present for each node in the network is of _____ bits.
 - a) 12
 - b) 32
 - c) 64
 - d) 48
- 8) The IP address 199.155.66.63 belongs to _____.
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Draw neat diagrams.

Section – I

- Q.2 Answer any four.** **16**
- a) With the help of diagram and example explain EIA232 Serial Communication Protocol.
 - b) How CRC is used to detect the error in message transmission? For given message bits “1010111101” and divisor polynomial “1101” calculate CRC.
 - c) Calculate Hamming code-word for an ASCII character - 1011010. Assume even parity during transmission.
 - d) With neat diagram discuss the stop and wait protocol in detail.
 - e) Draw frame format of IEEE 802.3 LAN and explain each field in detail.
- Q.3 Attempt any two.** **12**
- a) Explain in detail IEEE 802.15 Bluetooth Protocol.
 - b) Draw and explain ISO-OSI reference model and discuss various issues handled by the layers.
 - c) Draw frame format of IEEE 802.4 protocol and explain each field in detail.

Section – II

- Q.4 Attempt any four.** **16**
- a) Draw TCP packet format and explain its header in detail.
 - b) What are different IP address classes? Write ranges of different IP addresses. What is default network mask for IP address 10.10.10.11?
 - c) Explain IP packet Header in detail with help of diagram.
 - d) Give the difference between Virtual circuit switching and datagram switching techniques.
 - e) Differentiate between OSPF and BGP in computer networks.
- Q.5 Attempt any two.** **12**
- a) What is encapsulation and decapsulation in TCP/IP? Discuss three-way handshake in TCP.
 - b) With neat diagram explain Link State Routing in detail.
 - c) With the help of Diagram Explain Client - Server Architecture.

- 9) The MAC id 06:12:EA:4F:30:98 is _____ type.
- a) Unicast
 - b) Multicast
 - c) Broadcast
 - d) None of these
- 10) The ARQ stands for _____.
- a) All Repeat Queue
 - b) Automatic Repeat Request
 - c) Automatic Resolve Question
 - d) None of these
- 11) Physical or logical arrangement of network is _____.
- a) Topology
 - b) Routing
 - c) Group
 - d) None of these
- 12) Error detection at the data link level is achieved by _____.
- a) Bit stuffing
 - b) CRC
 - c) Frame formation
 - d) Equalization
- 13) The maximum throughput for pure ALOHA is _____ percent.
- a) 12.2
 - b) 18.4
 - c) 36.8
 - d) None of these
- 14) The network address (MAC) or Physical address present for each node in the network is of _____ bits.
- a) 12
 - b) 32
 - c) 64
 - d) 48

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Draw neat diagrams.

Section – I

- Q.2 Answer any four.** **16**
- With the help of diagram and example explain EIA232 Serial Communication Protocol.
 - How CRC is used to detect the error in message transmission? For given message bits “1010111101” and divisor polynomial “1101” calculate CRC.
 - Calculate Hamming code-word for an ASCII character - 1011010. Assume even parity during transmission.
 - With neat diagram discuss the stop and wait protocol in detail.
 - Draw frame format of IEEE 802.3 LAN and explain each field in detail.
- Q.3 Attempt any two.** **12**
- Explain in detail IEEE 802.15 Bluetooth Protocol.
 - Draw and explain ISO-OSI reference model and discuss various issues handled by the layers.
 - Draw frame format of IEEE 802.4 protocol and explain each field in detail.

Section – II

- Q.4 Attempt any four.** **16**
- Draw TCP packet format and explain its header in detail.
 - What are different IP address classes? Write ranges of different IP addresses. What is default network mask for IP address 10.10.10.11?
 - Explain IP packet Header in detail with help of diagram.
 - Give the difference between Virtual circuit switching and datagram switching techniques.
 - Differentiate between OSPF and BGP in computer networks.
- Q.5 Attempt any two.** **12**
- What is encapsulation and decapsulation in TCP/IP? Discuss three-way handshake in TCP.
 - With neat diagram explain Link State Routing in detail.
 - With the help of Diagram Explain Client - Server Architecture.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Draw neat diagrams.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) TCP packets have size of header of _____ bytes.
 - a) 8 to 10 bytes
 - b) 50 to 60 bytes
 - c) 20 to 40 bytes
 - d) 20 to 60 bytes
- 2) Router can recognize and work with _____ addresses.
 - a) Data Link Layer
 - b) Physical Layer
 - c) Network Layer
 - d) Application Layer
- 3) Count to infinity problem is present _____ Routing Protocol.
 - a) Shortest Path
 - b) Distance Vector
 - c) Link State
 - d) None of these
- 4) A _____ is one endpoint of a two-way communication link between two programs running on the network.
 - a) Gateway
 - b) Semaphore
 - c) Socket
 - d) None of these
- 5) Network device HUB is _____ layer device.
 - a) Physical
 - b) Data Link
 - c) Network
 - d) Application
- 6) The MAC id 06:12:EA:4F:30:98 is _____ type.
 - a) Unicast
 - b) Multicast
 - c) Broadcast
 - d) None of these
- 7) The ARQ stands for _____.
 - a) All Repeat Queue
 - b) Automatic Repeat Request
 - c) Automatic Resolve Question
 - d) None of these
- 8) Physical or logical arrangement of network is _____.
 - a) Topology
 - b) Routing
 - c) Group
 - d) None of these

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Draw neat diagrams.

Section – I

- Q.2 Answer any four.** **16**
- With the help of diagram and example explain EIA232 Serial Communication Protocol.
 - How CRC is used to detect the error in message transmission? For given message bits “1010111101” and divisor polynomial “1101” calculate CRC.
 - Calculate Hamming code-word for an ASCII character - 1011010. Assume even parity during transmission.
 - With neat diagram discuss the stop and wait protocol in detail.
 - Draw frame format of IEEE 802.3 LAN and explain each field in detail.
- Q.3 Attempt any two.** **12**
- Explain in detail IEEE 802.15 Bluetooth Protocol.
 - Draw and explain ISO-OSI reference model and discuss various issues handled by the layers.
 - Draw frame format of IEEE 802.4 protocol and explain each field in detail.

Section – II

- Q.4 Attempt any four.** **16**
- Draw TCP packet format and explain its header in detail.
 - What are different IP address classes? Write ranges of different IP addresses. What is default network mask for IP address 10.10.10.11?
 - Explain IP packet Header in detail with help of diagram.
 - Give the difference between Virtual circuit switching and datagram switching techniques.
 - Differentiate between OSPF and BGP in computer networks.
- Q.5 Attempt any two.** **12**
- What is encapsulation and decapsulation in TCP/IP? Discuss three-way handshake in TCP.
 - With neat diagram explain Link State Routing in detail.
 - With the help of Diagram Explain Client - Server Architecture.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Draw neat diagrams.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) The maximum throughput for pure ALOHA is _____ percent.
 - a) 12.2
 - b) 18.4
 - c) 36.8
 - d) None of these
- 2) The network address (MAC) or Physical address present for each node in the network is of _____ bits.
 - a) 12
 - b) 32
 - c) 64
 - d) 48
- 3) The IP address 199.155.66.63 belongs to _____.
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D
- 4) The data unit in transport layer in TCP/IP is called _____.
 - a) A datagram
 - b) A segment
 - c) Frame
 - d) Bit-string
- 5) Which of the following is false with respect to UDP?
 - a) Connection oriented
 - b) Unreliable
 - c) Transport layer protocol
 - d) All of the mentioned
- 6) TCP packets have size of header of _____ bytes.
 - a) 8 to 10 bytes
 - b) 50 to 60 bytes
 - c) 20 to 40 bytes
 - d) 20 to 60 bytes
- 7) Router can recognize and work with _____ addresses.
 - a) Data Link Layer
 - b) Physical Layer
 - c) Network Layer
 - d) Application Layer
- 8) Count to infinity problem is present _____ Routing Protocol.
 - a) Shortest Path
 - b) Distance Vector
 - c) Link State
 - d) None of these

- 9) A _____ is one endpoint of a two-way communication link between two programs running on the network.
- a) Gateway
 - b) Semaphore
 - c) Socket
 - d) None of these
- 10) Network device HUB is _____ layer device.
- a) Physical
 - b) Data Link
 - c) Network
 - d) Application
- 11) The MAC id 06:12:EA:4F:30:98 is _____ type.
- a) Unicast
 - b) Multicast
 - c) Broadcast
 - d) None of these
- 12) The ARQ stands for _____.
- a) All Repeat Queue
 - b) Automatic Repeat Request
 - c) Automatic Resolve Question
 - d) None of these
- 13) Physical or logical arrangement of network is _____.
- a) Topology
 - b) Routing
 - c) Group
 - d) None of these
- 14) Error detection at the data link level is achieved by _____.
- a) Bit stuffing
 - b) CRC
 - c) Frame formation
 - d) Equalization

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Networks (BTN04601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.
 4) Draw neat diagrams.

Section – I

- Q.2 Answer any four.** **16**
- With the help of diagram and example explain EIA232 Serial Communication Protocol.
 - How CRC is used to detect the error in message transmission? For given message bits “1010111101” and divisor polynomial “1101” calculate CRC.
 - Calculate Hamming code-word for an ASCII character - 1011010. Assume even parity during transmission.
 - With neat diagram discuss the stop and wait protocol in detail.
 - Draw frame format of IEEE 802.3 LAN and explain each field in detail.
- Q.3 Attempt any two.** **12**
- Explain in detail IEEE 802.15 Bluetooth Protocol.
 - Draw and explain ISO-OSI reference model and discuss various issues handled by the layers.
 - Draw frame format of IEEE 802.4 protocol and explain each field in detail.

Section – II

- Q.4 Attempt any four.** **16**
- Draw TCP packet format and explain its header in detail.
 - What are different IP address classes? Write ranges of different IP addresses. What is default network mask for IP address 10.10.10.11?
 - Explain IP packet Header in detail with help of diagram.
 - Give the difference between Virtual circuit switching and datagram switching techniques.
 - Differentiate between OSPF and BGP in computer networks.
- Q.5 Attempt any two.** **12**
- What is encapsulation and decapsulation in TCP/IP? Discuss three-way handshake in TCP.
 - With neat diagram explain Link State Routing in detail.
 - With the help of Diagram Explain Client - Server Architecture.

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A _____ processor has large number of general purpose registers.
 - a) CICS
 - b) RISC
 - c) Both a & b
 - d) None of the above
- 2) _____ mode is used when the processor encounters an instruction that is not supported by the implementation.
 - a) Supervisor
 - b) System
 - c) Undefined
 - d) About
- 3) Let $r0=0x02020202$ and $r1 =0x00009000$. What will be the content of $r1$ after execution of instruction "LDR $r0$, [$r1$], #4"?
 - a) 0x00009000
 - b) 0x02020202
 - c) 0x00009004
 - d) 0x00008ffb
- 4) In ARM _____ exception is having the highest priority.
 - a) Reset
 - b) Supervisor
 - c) System
 - d) Interrupt request
- 5) ARM uses the thumb _____ bit instruction set to improve code density.
 - a) 32
 - b) 8
 - c) 64
 - d) 16
- 6) Let $r0=0x00000000$ and $r1=0x00000005$. What will be the content of $r0$ after execution of instruction "ADD $r0$, $r1$, $r1$, LSL #1"?
 - a) 0x00000000
 - b) 0x00000005
 - c) 0x0000000a
 - d) 0x0000000f
- 7) The ARM register _____ is the program counter.
 - a) R12
 - b) R13
 - c) R14
 - d) R15
- 8) The on-chip ADC's of LPC2148 has _____ bit resolution and _____ conversion time.
 - a) 8, 2.44 μsec
 - b) 10, 2.44 μsec
 - c) 12, 1.44 μsec
 - d) 10, 1.44 μsec

- 9) In LPC2148 the _____ register is used to select the direction of port pins P1.0 to P1.31.
- a) IOCLR1
 - b) IODIR0
 - c) PINSEL2
 - d) IODIR1
- 10) The SPI bus can operate with a _____ master device/s and with _____ slave device/s.
- a) single, one
 - b) single, one or more
 - c) two, single
 - d) two, two
- 11) Information about a task is maintained in a _____.
- a) Stack
 - b) Translation Look aside Buffer
 - c) Task Control Block
 - d) Task Condition Block
- 12) A _____ is software for controlling, receiving, and sending a byte or stream of bytes from or to device.
- a) Kernel
 - b) Shell
 - c) Processor
 - d) Device Driver
- 13) Binary, Mutual exclusion, Counting are the types of _____.
- a) Queues
 - b) Pipes
 - c) Semaphores
 - d) Mailboxes
- 14) Inter task communication can be done through _____.
- a) Mailboxes
 - b) Queues
 - c) Pipes
 - d) All of above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Write an ARM assembly program to add two 32 bit numbers.
- Explain the use of R13, R14, R15 registers in ARM7.
- Explain nomenclature used for ARM processors.
- Classify and review different addressing modes of ARM7 with examples.
- Define embedded system. Explain major characteristics which differs embedded system from desktop computer.

Q.3 Solve any two. 12

- What is pipeline? Explain it with suitable example.
- Draw and explain ARM core data flow model.
- Explain hardware and software architecture of embedded system.

Section – II

Q.4 Solve any four. 16

- What is a task? Elaborate the task control box (TCB) and its data in detail.
- List out the features of LPC2148
- Explain different inter-process communication techniques.
- Define RTOS. Explain its function.
- Explain the use of IOSET and IOCLR registers in LPC2148 with example.

Q.5 Solve any two. 12

- Interface 8 LED's to LPC2148 port pins P0.2 to P0.9. Write an embedded C program to blink them alternately continuously.
- Sketch and discuss interfacing of 16*2 LCD with LPC2148.
- What is context switch or task switch? Explain with neat diagram.

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The on-chip ADC's of LPC2148 has _____ bit resolution and _____ conversion time.
 - a) 8, 2.44 μsec
 - b) 10, 2.44 μsec
 - c) 12, 1.44 μsec
 - d) 10, 1.44 μsec
- 2) In LPC2148 the _____ register is used to select the direction of port pins P1.0 to P1.31.
 - a) IOCLR1
 - b) IODIR0
 - c) PINSEL2
 - d) IODIR1
- 3) The SPI bus can operate with a _____ master device/s and with _____ slave device/s.
 - a) single, one
 - b) single, one or more
 - c) two, single
 - d) two, two
- 4) Information about a task is maintained in a _____.
 - a) Stack
 - b) Translation Look aside Buffer
 - c) Task Control Block
 - d) Task Condition Block
- 5) A _____ is software for controlling, receiving, and sending a byte or stream of bytes from or to device.
 - a) Kernel
 - b) Shell
 - c) Processor
 - d) Device Driver
- 6) Binary, Mutual exclusion, Counting are the types of _____.
 - a) Queues
 - b) Pipes
 - c) Semaphores
 - d) Mailboxes
- 7) Inter task communication can be done through _____.
 - a) Mailboxes
 - b) Queues
 - c) Pipes
 - d) All of above
- 8) A _____ processor has large number of general purpose registers.
 - a) CICS
 - b) RISC
 - c) Both a & b
 - d) None of the above

- 9) _____ mode is used when the processor encounters an instruction that is not supported by the implementation.
- a) Supervisor
 - b) System
 - c) Undefined
 - d) Abort
- 10) Let $r0=0x02020202$ and $r1 =0x00009000$. What will be the content of $r1$ after execution of instruction "LDR $r0, [r1], \#4$ "?
- a) $0x00009000$
 - b) $0x02020202$
 - c) $0x00009004$
 - d) $0x00008ffb$
- 11) In ARM _____ exception is having the highest priority.
- a) Reset
 - b) Supervisor
 - c) System
 - d) Interrupt request
- 12) ARM uses the thumb _____ bit instruction set to improve code density.
- a) 32
 - b) 8
 - c) 64
 - d) 16
- 13) Let $r0=0x00000000$ and $r1=0x00000005$. What will be the content of $r0$ after execution of instruction "ADD $r0, r1, r1, LSL \#1$ "?
- a) $0x00000000$
 - b) $0x00000005$
 - c) $0x0000000a$
 - d) $0x0000000f$
- 14) The ARM register _____ is the program counter.
- a) R12
 - b) R13
 - c) R14
 - d) R15

Seat No.	
-----------------	--

Set **Q**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four.** **16**
- a) Write an ARM assembly program to add two 32 bit numbers.
 - b) Explain the use of R13, R14, R15 registers in ARM7.
 - c) Explain nomenclature used for ARM processors.
 - d) Classify and review different addressing modes of ARM7 with examples.
 - e) Define embedded system. Explain major characteristics which differs embedded system from desktop computer.

- Q.3 Solve any two.** **12**
- a) What is pipeline? Explain it with suitable example.
 - b) Draw and explain ARM core data flow model.
 - c) Explain hardware and software architecture of embedded system.

Section – II

- Q.4 Solve any four.** **16**
- a) What is a task? Elaborate the task control box (TCB) and its data in detail.
 - b) List out the features of LPC2148
 - c) Explain different inter-process communication techniques.
 - d) Define RTOS. Explain its function.
 - e) Explain the use of IOSET and IOCLR registers in LPC2148 with example.

- Q.5 Solve any two.** **12**
- a) Interface 8 LED's to LPC2148 port pins P0.2 to P0.9. Write an embedded C program to blink them alternately continuously.
 - b) Sketch and discuss interfacing of 16*2 LCD with LPC2148.
 - c) What is context switch or task switch? Explain with neat diagram.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four.** **16**
- a) Write an ARM assembly program to add two 32 bit numbers.
 - b) Explain the use of R13, R14, R15 registers in ARM7.
 - c) Explain nomenclature used for ARM processors.
 - d) Classify and review different addressing modes of ARM7 with examples.
 - e) Define embedded system. Explain major characteristics which differs embedded system from desktop computer.

- Q.3 Solve any two.** **12**
- a) What is pipeline? Explain it with suitable example.
 - b) Draw and explain ARM core data flow model.
 - c) Explain hardware and software architecture of embedded system.

Section – II

- Q.4 Solve any four.** **16**
- a) What is a task? Elaborate the task control box (TCB) and its data in detail.
 - b) List out the features of LPC2148
 - c) Explain different inter-process communication techniques.
 - d) Define RTOS. Explain its function.
 - e) Explain the use of IOSET and IOCLR registers in LPC2148 with example.

- Q.5 Solve any two.** **12**
- a) Interface 8 LED's to LPC2148 port pins P0.2 to P0.9. Write an embedded C program to blink them alternately continuously.
 - b) Sketch and discuss interfacing of 16*2 LCD with LPC2148.
 - c) What is context switch or task switch? Explain with neat diagram.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Let $r0=0x00000000$ and $r1=0x00000005$. What will be the content of $r0$ after execution of instruction "ADD $r0, r1, r1, LSL \#1$ "?
 - a) $0x00000000$
 - b) $0x00000005$
 - c) $0x0000000a$
 - d) $0x0000000f$
- 2) The ARM register _____ is the program counter.
 - a) R12
 - b) R13
 - c) R14
 - d) R15
- 3) The on-chip ADC's of LPC2148 has _____ bit resolution and _____ conversion time.
 - a) 8, 2.44 μsec
 - b) 10, 2.44 μsec
 - c) 12, 1.44 μsec
 - d) 10, 1.44 μsec
- 4) In LPC2148 the _____ register is used to select the direction of port pins P1.0 to P1.31.
 - a) IOCLR1
 - b) IODIR0
 - c) PINSEL2
 - d) IODIR1
- 5) The SPI bus can operate with a _____ master device/s and with _____ slave device/s.
 - a) single, one
 - b) single, one or more
 - c) two, single
 - d) two, two
- 6) Information about a task is maintained in a _____.
 - a) Stack
 - b) Translation Look aside Buffer
 - c) Task Control Block
 - d) Task Condition Block
- 7) A _____ is software for controlling, receiving, and sending a byte or stream of bytes from or to device.
 - a) Kernel
 - b) Shell
 - c) Processor
 - d) Device Driver
- 8) Binary, Mutual exclusion, Counting are the types of _____.
 - a) Queues
 - b) Pipes
 - c) Semaphores
 - d) Mailboxes

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Embedded Systems (BTN04602)

Day & Date: Friday 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Write an ARM assembly program to add two 32 bit numbers.
 - b) Explain the use of R13, R14, R15 registers in ARM7.
 - c) Explain nomenclature used for ARM processors.
 - d) Classify and review different addressing modes of ARM7 with examples.
 - e) Define embedded system. Explain major characteristics which differs embedded system from desktop computer.

- Q.3 Solve any two. 12**
- a) What is pipeline? Explain it with suitable example.
 - b) Draw and explain ARM core data flow model.
 - c) Explain hardware and software architecture of embedded system.

Section – II

- Q.4 Solve any four. 16**
- a) What is a task? Elaborate the task control box (TCB) and its data in detail.
 - b) List out the features of LPC2148
 - c) Explain different inter-process communication techniques.
 - d) Define RTOS. Explain its function.
 - e) Explain the use of IOSET and IOCLR registers in LPC2148 with example.

- Q.5 Solve any two. 12**
- a) Interface 8 LED's to LPC2148 port pins P0.2 to P0.9. Write an embedded C program to blink them alternately continuously.
 - b) Sketch and discuss interfacing of 16*2 LCD with LPC2148.
 - c) What is context switch or task switch? Explain with neat diagram.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
VLSI Design (BTN04603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A test bench is used _____.
 - a) Verify the functionality of a design
 - b) To generate primitives
 - c) To generate net list
 - d) None of above

- 2) When the following signal assignment statement executes at 5 ns, the new value will be assigned to signal at what time?

$$X \leq a \text{ and } b \text{ after } 5 \text{ ns};$$
 - a) 10 ns;
 - b) 10 ns + Δ
 - c) 5 ns
 - d) 5 ns + Δ

- 3) VHDL statement

$$\text{Op} \leq \text{input when } e = '1' \text{ else 'z';} \quad \text{infers}$$
 - a) 2: 1 multiplexer
 - b) Tristate buffer
 - c) Buffer
 - d) None of these

- 4) Which of the following feature can be used to specify the parameters for a component at the time of instantiation?
 - a) Generate
 - b) Attribute
 - c) Generics
 - d) Signals

- 5) The design unit used for storage of common declarations are _____.
 - a) configuration declarations
 - b) package body
 - c) package declarations
 - d) None of these

- 6) The weak 1 is represented in IEEE 1164,9 valued logic is represented by _____.
 - a) 'W'
 - b) 'H'
 - c) 'X'
 - d) 'I'

- 7) Assuming the left operand as BIT - vector, "1001010" sla 2 is _____.
 - a) "0101010"
 - b) "0101000"
 - c) "0101011"
 - d) None of these

- 8) The CPLD contains several PLD blocks and _____.
 - a) AND-OR arrays
 - b) A language compiler
 - c) Field programmable switches
 - d) A global interconnect matrix

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
VLSI Design (BTN04603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. **16**

- a) Write VHDL code for D flip flop with asynchronous reset.
- b) Explain with suitable example different forms of wait statement. What is the significance of wait for 0 ns?
- c) Explain the transport and inertial delays in VHDL.
- d) Write VHDL code for 4:1 multiplexer.
- e) Consider A= "100", B= "101" and C ="011101" obtain following
 - i) C sra 3
 - ii) C ror 2
 - iii) (A & B) and C
 - iv) not B xor A

Q.3 Solve Any Two. **12**

- a) What are the major differences between VHDL functions and VHDL Procedures? Write VHDL function for adding two 4 bit numbers.
- b) Write VHDL code for Full adder. Also write the test bench for testing it.
- c) Write VHDL code for a Mealy FSM to detect the sequence 110 at the input. It should produce output z equal to 1 whenever the sequence is detected on input x.

Section – II

Q.4 Solve Any Four. **16**

- a) Differentiate between CPLD and FPGA.
- b) Draw RTL simulation flow and explain the steps in simulation.
- c) Draw and Explain synthesis process in brief.
- d) Derive a CMOS complex gate for following logic functions.

$$f = \overline{x_1} + (\overline{x_2} \overline{x_3})$$
- e) Explain the operation of CMOS inverter along with the transfer characteristics.

Q.5 Solve Any Two. **12**

- a) Draw and Explain Xilinx Spartan 4000 FPGA architecture.
- b) Draw and explain the architecture of product term allocator and macrocell for XC 9500 CPLD. What maximum number of product terms can be combined and steered to one macrocell?
- c) Draw and explain the schematic arrangement for testing sequential circuits.

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
VLSI Design (BTN04603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Solve Any Four.** **16**

- a) Write VHDL code for D flip flop with asynchronous reset.
- b) Explain with suitable example different forms of wait statement. What is the significance of wait for 0 ns?
- c) Explain the transport and inertial delays in VHDL.
- d) Write VHDL code for 4:1 multiplexer.
- e) Consider A= "100", B= "101" and C ="011101" obtain following
 - i) C sra 3
 - ii) C ror 2
 - iii) (A & B) and C
 - iv) not B xor A

Q.3 Solve Any Two. **12**

- a) What are the major differences between VHDL functions and VHDL Procedures? Write VHDL function for adding two 4 bit numbers.
- b) Write VHDL code for Full adder. Also write the test bench for testing it.
- c) Write VHDL code for a Melay FSM to detect the sequence 110 at the input. It should produce output z equal to 1 whenever the sequence is detected on input x.

Section – II**Q.4 Solve Any Four.** **16**

- a) Differentiate between CPLD and FPGA.
- b) Draw RTL simulation flow and explain the steps in simulation.
- c) Draw and Explain synthesis process in brief.
- d) Derive a CMOS complex gate for following logic functions.

$$f = \overline{x_1} + (\overline{x_2} \overline{x_3})$$
- e) Explain the operation of CMOS inverter along with the transfer characteristics.

Q.5 Solve Any Two. **12**

- a) Draw and Explain Xilinx Spartan 4000 FPGA architecture.
- b) Draw and explain the architecture of product term allocator and macrocell for XC 9500 CPLD. What maximum number of product terms can be combined and steered to one macrocell?
- c) Draw and explain the schematic arrangement for testing sequential circuits.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
VLSI Design (BTN04603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) CMOS logic consists of _____.
 - a) pull up network
 - b) pull down network
 - c) both a) and b)
 - d) None of above
- 2) A single pattern that may be interpreted as a result of all the applied tests in testing is _____.
 - a) MIC
 - b) PRBSG
 - c) SIC
 - d) Signature
- 3) Which of the following method is used for testing the sequential circuit?
 - a) Random tests
 - b) Scan path technique
 - c) Path sensitizing technique
 - d) All of these
- 4) Input of synthesis process are _____.
 - a) RTL VHDL description
 - b) Circuit constraints and attributes design
 - c) Technology library
 - d) All of above
- 5) A test bench is used _____.
 - a) Verify the functionality of a design
 - b) To generate primitives
 - c) To generate net list
 - d) None of above
- 6) When the following signal assignment statement executes at 5 ns, the new value will be assigned to signal at what time?

$$X \leq a \text{ and } b \text{ after } 5 \text{ ns};$$
 - a) 10 ns;
 - b) 10 ns + Δ
 - c) 5 ns
 - d) 5 ns + Δ
- 7) VHDL statement

$$\text{Op} \leq \text{input when e = '1' else 'z';}$$
 - a) 2: 1 multiplexer
 - b) Tristate buffer
 - c) Buffer
 - d) None of these

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
VLSI Design (BTN04603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. **16**

- a) Write VHDL code for D flip flop with asynchronous reset.
- b) Explain with suitable example different forms of wait statement. What is the significance of wait for 0 ns?
- c) Explain the transport and inertial delays in VHDL.
- d) Write VHDL code for 4:1 multiplexer.
- e) Consider A= "100", B= "101" and C ="011101" obtain following
 - i) C sra 3
 - ii) C ror 2
 - iii) (A & B) and C
 - iv) not B xor A

Q.3 Solve Any Two. **12**

- a) What are the major differences between VHDL functions and VHDL Procedures? Write VHDL function for adding two 4 bit numbers.
- b) Write VHDL code for Full adder. Also write the test bench for testing it.
- c) Write VHDL code for a Melay FSM to detect the sequence 110 at the input. It should produce output z equal to 1 whenever the sequence is detected on input x.

Section – II

Q.4 Solve Any Four. **16**

- a) Differentiate between CPLD and FPGA.
- b) Draw RTL simulation flow and explain the steps in simulation.
- c) Draw and Explain synthesis process in brief.
- d) Derive a CMOS complex gate for following logic functions.

$$f = \overline{x_1} + (\overline{x_2} \overline{x_3})$$
- e) Explain the operation of CMOS inverter along with the transfer characteristics.

Q.5 Solve Any Two. **12**

- a) Draw and Explain Xilinx Spartan 4000 FPGA architecture.
- b) Draw and explain the architecture of product term allocator and macrocell for XC 9500 CPLD. What maximum number of product terms can be combined and steered to one macrocell?
- c) Draw and explain the schematic arrangement for testing sequential circuits.

- 10) A test bench is used _____.
- a) Verify the functionality of a design
 - b) To generate primitives
 - c) To generate net list
 - d) None of above
- 11) When the following signal assignment statement executes at 5 ns, the new value will be assigned to signal at what time?
- $$X \leq a \text{ and } b \text{ after } 5 \text{ ns};$$
- a) 10 ns;
 - b) 10 ns + Δ
 - c) 5 ns
 - d) 5 ns + Δ
- 12) VHDL statement
- Op <= input when e = '1' else 'z'; infers
- a) 2: 1 multiplexer
 - b) Tristate buffer
 - c) Buffer
 - d) None of these
- 13) Which of the following feature can be used to specify the parameters for a component at the time of instantiation?
- a) Generate
 - b) Attribute
 - c) Generics
 - d) Signals
- 14) The design unit used for storage of common declarations are_____.
- a) configuration declarations
 - b) package body
 - c) package declarations
 - d) None of these

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
VLSI Design (BTN04603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. **16**

- a) Write VHDL code for D flip flop with asynchronous reset.
- b) Explain with suitable example different forms of wait statement. What is the significance of wait for 0 ns?
- c) Explain the transport and inertial delays in VHDL.
- d) Write VHDL code for 4:1 multiplexer.
- e) Consider A= "100", B= "101" and C ="011101" obtain following
 - i) C sra 3
 - ii) C ror 2
 - iii) (A & B) and C
 - iv) not B xor A

Q.3 Solve Any Two. **12**

- a) What are the major differences between VHDL functions and VHDL Procedures? Write VHDL function for adding two 4 bit numbers.
- b) Write VHDL code for Full adder. Also write the test bench for testing it.
- c) Write VHDL code for a Melay FSM to detect the sequence 110 at the input. It should produce output z equal to 1 whenever the sequence is detected on input x.

Section – II

Q.4 Solve Any Four. **16**

- a) Differentiate between CPLD and FPGA.
- b) Draw RTL simulation flow and explain the steps in simulation.
- c) Draw and Explain synthesis process in brief.
- d) Derive a CMOS complex gate for following logic functions.

$$f = \overline{x_1} + (\overline{x_2} \overline{x_3})$$
- e) Explain the operation of CMOS inverter along with the transfer characteristics.

Q.5 Solve Any Two. **12**

- a) Draw and Explain Xilinx Spartan 4000 FPGA architecture.
- b) Draw and explain the architecture of product term allocator and macrocell for XC 9500 CPLD. What maximum number of product terms can be combined and steered to one macrocell?
- c) Draw and explain the schematic arrangement for testing sequential circuits.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option.

14

- 1) In _____ image we notice that the components of histogram are concentrated on the low side on intensity scale.
 - a) bright
 - b) dark
 - c) colorful
 - d) all of the above
- 2) Which one of the edge detection mask is of size 2x2 mask?
 - a) Prewitt
 - b) Sobel
 - c) Robert
 - d) None
- 3) Which segmentation algorithm groups pixels or sub region into larger regions based on predefined criteria?
 - a) Region growing
 - b) Region splitting and Merging
 - c) K-means
 - d) None
- 4) Advantages of image transform include: _____.
 - a) Conservation of energy
 - b) Energy Compaction
 - c) Speed of Processing
 - d) All above
- 5) Image enhancement traditionally included _____.
 - a) Smoothing
 - b) Sharpening
 - c) Degradation
 - d) Both a) and b)
- 6) In a binary image, total no of intensity levels are: _____.
 - a) 8
 - b) 2
 - c) 256
 - d) 4
- 7) A perceptual attribute of light which measures total energy is _____.
 - a) Hue
 - b) Brightness
 - c) Saturation
 - d) None
- 8) _____ Counting the number of direction change (in counterclockwise) between 2 adjacent elements of the code.
 - a) The second difference of a chain code
 - b) The third difference of a chain code
 - c) The first difference of a chain code
 - d) None of above

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary

Section – I

Q.2 Attempt Any Four. **16**

- a) Consider the image segment shown.
 3 1 2 1(q)
 2 2 0 2
 1 2 1 1
 (p) 1 0 1 2
 Let $V = \{0, 1\}$ and compute the lengths of the shortest 4, 8 and m – path between p and q. If a particular path does not exist between these two points, explain why.
- b) Differentiate between low pass and high pass filters.
 c) Define image smoothing and sharpening.
 d) Give the mask used for high boost filtering.
 e) Write a note on median filter.

Q.3 Attempt Any Two. **12**

- a) Explain with necessary diagrams Histogram Equalization.
 b) Describe various image transformation techniques in spatial domain.
 c) What do you mean by digital image processing? Discuss the different application areas of digital image processing.

Section – II

Q.4 Attempt Any Four. **16**

- a) What is shape number? Draw all shapes of order 8 along with 4 directional chain code and shape number.
 b) Explain the process of edge detection using gradient operators.
 c) Define data compression, entropy, and relative data redundancy and compression ratio.
 d) Differentiate between lossless and lossy compression
 e) Write a mask of sobel operator, prewitt operator and laplacian operator.

Q.5 Attempt Any Two. **12**

- a) What is role of representation in DIP? Discuss different approaches for representation process.
 b) Explain how compression is achieved in transform coding and explain about DCT.
 c) Explain region spilt and merge segmentation technique. How does it overcome the problem of region splitting?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option.

14

- 1) _____ Counting the number of direction change (in counterclockwise) between 2 adjacent elements of the code.
 - a) The second difference of a chain code
 - b) The third difference of a chain code
 - c) The first difference of a chain code
 - d) None of above
- 2) _____ view a coordinate (x,y) as a complex number (x = real part and y = imaginary part) then apply the Fourier transform to a sequence of boundary points.
 - a) Fourier descriptor
 - b) Laplace descriptor
 - c) Regional descriptor
 - d) None
- 3) The city block distance between P & Q is defined as _____ where (x,y) & (s, t) are co-ordinates of P and Q respectively.
 - a) $\{[(x-s)^2+(y-t)^2]^{1/2}$
 - b) $\{[(x-s)^2 + (y -t)^2]$
 - c) $|x-s| + |y-t|$
 - d) None of these
- 4) _____ represent an object boundary by a connected sequence of straight line segments of specified length and direction.
 - a) hex codes
 - b) chain codes
 - c) binary codes
 - d) None of these
- 5) The sum of cosines and sines coefficient multiplied is _____.
 - a) Fourier series
 - b) Fourier transform
 - c) Fast Fourier series
 - d) Fast Fourier transform
- 6) Digital video is sequence of _____.
 - a) pixels
 - b) Frames
 - c) matrix
 - d) Coordinates
- 7) Image compression comprised of _____.
 - a) encoder
 - b) decoder
 - c) frames
 - d) both a and b

- 8) In _____ image we notice that the components of histogram are concentrated on the low side on intensity scale.
- a) bright
 - b) dark
 - c) colorful
 - d) all of the above
- 9) Which one of the edge detection mask is of size 2x2 mask?
- a) Prewitt
 - b) Sobel
 - c) Robert
 - d) None
- 10) Which segmentation algorithm groups pixels or sub region into larger regions based on predefined criteria?
- a) Region growing
 - b) Region splitting and Merging
 - c) K-means
 - d) None
- 11) Advantages of image transform include: _____.
- a) Conservation of energy
 - b) Energy Compaction
 - c) Speed of Processing
 - d) All above
- 12) Image enhancement traditionally included _____.
- a) Smoothing
 - b) Sharpening
 - c) Degradation
 - d) Both a) and b)
- 13) In a binary image, total no of intensity levels are: _____.
- a) 8
 - b) 2
 - c) 256
 - d) 4
- 14) A perceptual attribute of light which measures total energy is _____.
- a) Hue
 - b) Brightness
 - c) Saturation
 - d) None

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary

Section – I

Q.2 Attempt Any Four. **16**

- a) Consider the image segment shown.
 3 1 2 1(q)
 2 2 0 2
 1 2 1 1
 (p) 1 0 1 2
 Let $V = \{0, 1\}$ and compute the lengths of the shortest 4, 8 and m – path between p and q. If a particular path does not exist between these two points, explain why.
- b) Differentiate between low pass and high pass filters.
 c) Define image smoothing and sharpening.
 d) Give the mask used for high boost filtering.
 e) Write a note on median filter.

Q.3 Attempt Any Two. **12**

- a) Explain with necessary diagrams Histogram Equalization.
 b) Describe various image transformation techniques in spatial domain.
 c) What do you mean by digital image processing? Discuss the different application areas of digital image processing.

Section – II

Q.4 Attempt Any Four. **16**

- a) What is shape number? Draw all shapes of order 8 along with 4 directional chain code and shape number.
 b) Explain the process of edge detection using gradient operators.
 c) Define data compression, entropy, and relative data redundancy and compression ratio.
 d) Differentiate between lossless and lossy compression
 e) Write a mask of sobel operator, prewitt operator and laplacian operator.

Q.5 Attempt Any Two. **12**

- a) What is role of representation in DIP? Discuss different approaches for representation process.
 b) Explain how compression is achieved in transform coding and explain about DCT.
 c) Explain region spilt and merge segmentation technique. How does it overcome the problem of region splitting?

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Select suitable option.

14

- 1) _____ represent an object boundary by a connected sequence of straight line segments of specified length and direction.
 - a) hex codes
 - b) chain codes
 - c) binary codes
 - d) None of these
- 2) The sum of cosines and sines coefficient multiplied is _____.
 - a) Fourier series
 - b) Fourier transform
 - c) Fast Fourier series
 - d) Fast Fourier transform
- 3) Digital video is sequence of _____.
 - a) pixels
 - b) Frames
 - c) matrix
 - d) Coordinates
- 4) Image compression comprised of _____.
 - a) encoder
 - b) decoder
 - c) frames
 - d) both a and b
- 5) In _____ image we notice that the components of histogram are concentrated on the low side on intensity scale.
 - a) bright
 - b) dark
 - c) colorful
 - d) all of the above
- 6) Which one of the edge detection mask is of size 2x2 mask?
 - a) Prewitt
 - b) Sobel
 - c) Robert
 - d) None
- 7) Which segmentation algorithm groups pixels or sub region into larger regions based on predefined criteria?
 - a) Region growing
 - b) Region splitting and Merging
 - c) K-means
 - d) None
- 8) Advantages of image transform include: _____.
 - a) Conservation of energy
 - b) Energy Compaction
 - c) Speed of Processing
 - d) All above

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary

Section – I

Q.2 Attempt Any Four. **16**

- a) Consider the image segment shown.
 3 1 2 1(q)
 2 2 0 2
 1 2 1 1
 (p) 1 0 1 2
 Let $V = \{0, 1\}$ and compute the lengths of the shortest 4, 8 and m – path between p and q. If a particular path does not exist between these two points, explain why.
- b) Differentiate between low pass and high pass filters.
 c) Define image smoothing and sharpening.
 d) Give the mask used for high boost filtering.
 e) Write a note on median filter.

Q.3 Attempt Any Two. **12**

- a) Explain with necessary diagrams Histogram Equalization.
 b) Describe various image transformation techniques in spatial domain.
 c) What do you mean by digital image processing? Discuss the different application areas of digital image processing.

Section – II

Q.4 Attempt Any Four. **16**

- a) What is shape number? Draw all shapes of order 8 along with 4 directional chain code and shape number.
 b) Explain the process of edge detection using gradient operators.
 c) Define data compression, entropy, and relative data redundancy and compression ratio.
 d) Differentiate between lossless and lossy compression
 e) Write a mask of sobel operator, prewitt operator and laplacian operator.

Q.5 Attempt Any Two. **12**

- a) What is role of representation in DIP? Discuss different approaches for representation process.
 b) Explain how compression is achieved in transform coding and explain about DCT.
 c) Explain region spilt and merge segmentation technique. How does it overcome the problem of region splitting?

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Image Processing (BTN04609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary

Section – I

Q.2 Attempt Any Four. **16**

- a) Consider the image segment shown.
 3 1 2 1(q)
 2 2 0 2
 1 2 1 1
 (p) 1 0 1 2
 Let $V = \{0, 1\}$ and compute the lengths of the shortest 4, 8 and m – path between p and q. If a particular path does not exist between these two points, explain why.
- b) Differentiate between low pass and high pass filters.
 c) Define image smoothing and sharpening.
 d) Give the mask used for high boost filtering.
 e) Write a note on median filter.

Q.3 Attempt Any Two. **12**

- a) Explain with necessary diagrams Histogram Equalization.
 b) Describe various image transformation techniques in spatial domain.
 c) What do you mean by digital image processing? Discuss the different application areas of digital image processing.

Section – II

Q.4 Attempt Any Four. **16**

- a) What is shape number? Draw all shapes of order 8 along with 4 directional chain code and shape number.
 b) Explain the process of edge detection using gradient operators.
 c) Define data compression, entropy, and relative data redundancy and compression ratio.
 d) Differentiate between lossless and lossy compression
 e) Write a mask of sobel operator, prewitt operator and laplacian operator.

Q.5 Attempt Any Two. **12**

- a) What is role of representation in DIP? Discuss different approaches for representation process.
 b) Explain how compression is achieved in transform coding and explain about DCT.
 c) Explain region spilt and merge segmentation technique. How does it overcome the problem of region splitting?

Seat No.	
----------	--

Set **P**

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answers.**14**

- 1) In Unix, which system call creates the new process?
 - a) Fork
 - b) Create
 - c) New
 - d) None of the mentioned
- 2) A process is selected from the _____ queue by the _____ scheduler, to be executed.
 - a) blocked, short term
 - b) wait, long term
 - c) ready, short term
 - d) ready, long term
- 3) Response time is: _____.
 - a) the total time taken from the submission time till the completion time.
 - b) the total time taken from the submission time till the first response is produced.
 - c) the total time taken from submission time till the response is output.
 - d) None of these.
- 4) Termination of the process terminates _____.
 - a) first thread of the process
 - b) first two threads of the process
 - c) all threads within the process
 - d) no thread within the process
- 5) A parent process calling _____ system call will be suspended until children processes terminate.
 - a) fork
 - b) wait
 - c) exit
 - d) exec
- 6) Semaphore is a/an _____ to solve the critical section problem.
 - a) hardware for a system
 - b) special program for a system
 - c) integer variable
 - d) None of these
- 7) Which type of operating system is designed to manage a network of computers?
 - a) Simple batch system
 - b) Multiprogramming system
 - c) Time sharing system
 - d) Distributed operating system

Seat No.	
-------------	--

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

Q.2 Attempt Any Four: 16

- a) Describe the characteristics and importance of a real-time operating system in applications demanding immediate and deterministic responses.
- b) Explain the concept of system call in an operating system. Discuss its purpose, the types of system calls.
- c) Explain the structure and content of the Process Control Block and its role in managing and maintaining process-related information.
- d) What is operating system? Explain the different services provided by operating system.
- e) Define the critical section problem and its significance in concurrent programming, emphasizing the need for mutual exclusion.

Q.3 Attempt Any Two: 12

- a) Consider the following set of processes, with the length of the CPU burst time given in milliseconds.

Process	Burst Time	Arrival Time
P1	15	0
P2	6	2
P3	7	3
P4	5	5

- How will these processes be scheduled according to FCFS scheduling algorithm? Compute the average waiting time and average turnaround time.
- b) Describe different models of threading, such as many-to-one, one-to-one, and many-to-many threading models, highlighting their advantages and drawbacks.
- c) Explain in detail the shared memory system of interprocess communication.

Section – II

- Q.4 Attempt Any Four:** **16**
- a) Compare between internal and external fragmentation.
 - b) What is Banker's algorithm in OS? How Banker's algorithm is helpful in deciding safe sequence of process execution?
 - c) Consider page reference string 6, 7, 8, 9, 6, 7, 1, 6, 7, 8, 9, 1, 7, 9, Find out the number of page faults if 3-page frames are provided in case of least recently used page replacement mechanism.
 - d) Elaborate necessary conditions to produce deadlock in operating systems.
 - e) What is segmentation and types of segmentation in operating systems? What is segmentation table? Elaborate advantages of segmentation in OS.
- Q.5 Attempt Any Two:** **12**
- a) Describe terms associated with memory control
 - 1) Logical address
 - 2) Virtual address space
 - 3) Physical address and
 - 4) Physical address spaceDiscuss paging related to operating system.
 - b) Discuss following methods used to keep track of free space in the storage.
 - 1) Bitmap method
 - 2) Linked list and
 - 3) grouping and counting.Specify advantages and disadvantages of free space management techniques.
 - c) Why is memory management required? Discuss first fit, best fit and worst fit memory allocation approaches along with their advantages.

- 7) In contiguous allocation _____.
- a) each file must occupy a set of contiguous blocks on the disk
 - b) each file is a linked list of disk blocks
 - c) all the pointers to scattered blocks are placed together in one location
 - d) none of the mentioned
- 8) In Unix, which system call creates the new process?
- a) Fork
 - b) Create
 - c) New
 - d) None of the mentioned
- 9) A process is selected from the _____ queue by the _____ scheduler, to be executed.
- a) blocked, short term
 - b) wait, long term
 - c) ready, short term
 - d) ready, long term
- 10) Response time is: _____.
- a) the total time taken from the submission time till the completion time.
 - b) the total time taken from the submission time till the first response is produced.
 - c) the total time taken from submission time till the response is output.
 - d) None of these.
- 11) Termination of the process terminates _____.
- a) first thread of the process
 - b) first two threads of the process
 - c) all threads within the process
 - d) no thread within the process
- 12) A parent process calling _____ system call will be suspended until children processes terminate.
- a) fork
 - b) wait
 - c) exit
 - d) exec
- 13) Semaphore is a/an _____ to solve the critical section problem.
- a) hardware for a system
 - b) special program for a system
 - c) integer variable
 - d) None of these
- 14) Which type of operating system is designed to manage a network of computers?
- a) Simple batch system
 - b) Multiprogramming system
 - c) Time sharing system
 - d) Distributed operating system

Seat No.	
-------------	--

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

Q.2 Attempt Any Four: 16

- a) Describe the characteristics and importance of a real-time operating system in applications demanding immediate and deterministic responses.
- b) Explain the concept of system call in an operating system. Discuss its purpose, the types of system calls.
- c) Explain the structure and content of the Process Control Block and its role in managing and maintaining process-related information.
- d) What is operating system? Explain the different services provided by operating system.
- e) Define the critical section problem and its significance in concurrent programming, emphasizing the need for mutual exclusion.

Q.3 Attempt Any Two: 12

- a) Consider the following set of processes, with the length of the CPU burst time given in milliseconds.

Process	Burst Time	Arrival Time
P1	15	0
P2	6	2
P3	7	3
P4	5	5

- How will these processes be scheduled according to FCFS scheduling algorithm? Compute the average waiting time and average turnaround time.
- b) Describe different models of threading, such as many-to-one, one-to-one, and many-to-many threading models, highlighting their advantages and drawbacks.
- c) Explain in detail the shared memory system of interprocess communication.

Section – II

- Q.4 Attempt Any Four:** **16**
- a) Compare between internal and external fragmentation.
 - b) What is Banker's algorithm in OS? How Banker's algorithm is helpful in deciding safe sequence of process execution?
 - c) Consider page reference string 6, 7, 8, 9, 6, 7, 1, 6, 7, 8, 9, 1, 7, 9, Find out the number of page faults if 3-page frames are provided in case of least recently used page replacement mechanism.
 - d) Elaborate necessary conditions to produce deadlock in operating systems.
 - e) What is segmentation and types of segmentation in operating systems? What is segmentation table? Elaborate advantages of segmentation in OS.
- Q.5 Attempt Any Two:** **12**
- a) Describe terms associated with memory control
 - 1) Logical address
 - 2) Virtual address space
 - 3) Physical address and
 - 4) Physical address spaceDiscuss paging related to operating system.
 - b) Discuss following methods used to keep track of free space in the storage.
 - 1) Bitmap method
 - 2) Linked list and
 - 3) grouping and counting.Specify advantages and disadvantages of free space management techniques.
 - c) Why is memory management required? Discuss first fit, best fit and worst fit memory allocation approaches along with their advantages.

Seat No.	
----------	--

Set **R**

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answers.**14**

- 1) Which of the following condition is required for a deadlock to be possible?
 - a) mutual exclusion
 - b) a process may hold allocated resources while awaiting assignment of other resources
 - c) no resource can be forcibly removed from a process holding it
 - d) all the mentioned
- 2) Every address generated by the CPU is divided into two parts. They are _____.
 - a) frame bit & page number
 - b) page number & page offset
 - c) page offset & frame bit
 - d) frame offset & page offset
- 3) Program always deals with _____.
 - a) logical address
 - b) absolute address
 - c) physical address
 - d) relative address
- 4) In contiguous allocation _____.
 - a) each file must occupy a set of contiguous blocks on the disk
 - b) each file is a linked list of disk blocks
 - c) all the pointers to scattered blocks are placed together in one location
 - d) none of the mentioned
- 5) In Unix, which system call creates the new process?
 - a) Fork
 - b) Create
 - c) New
 - d) None of the mentioned
- 6) A process is selected from the _____ queue by the _____ scheduler, to be executed.
 - a) blocked, short term
 - b) wait, long term
 - c) ready, short term
 - d) ready, long term
- 7) Response time is: _____.
 - a) the total time taken from the submission time till the completion time.
 - b) the total time taken from the submission time till the first response is produced.
 - c) the total time taken from submission time till the response is output.
 - d) None of these.

- 8) Termination of the process terminates _____.
a) first thread of the process
b) first two threads of the process
c) all threads within the process
d) no thread within the process
- 9) A parent process calling _____ system call will be suspended until children processes terminate.
a) fork
b) wait
c) exit
d) exec
- 10) Semaphore is a/an _____ to solve the critical section problem.
a) hardware for a system
b) special program for a system
c) integer variable
d) None of these
- 11) Which type of operating system is designed to manage a network of computers?
a) Simple batch system
b) Multiprogramming system
c) Time sharing system
d) Distributed operating system
- 12) Physical memory is broken into fixed-sized blocks called _____.
a) frames
b) pages
c) backing store
d) none of the mentioned
- 13) The number of resources requested by a process _____.
a) must always be less than the total number of resources available in the system
b) must always be equal to the total number of resources available in the system
c) must not exceed the total number of resources available in the system
d) must exceed the total number of resources available in the system
- 14) To create a file _____.
a) allocate the space in file system
b) make an entry for new file in directory
c) allocate the space in file system & make an entry for new file in directory
d) none of the mentioned

Seat No.	
----------	--

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

Q.2 Attempt Any Four: 16

- a) Describe the characteristics and importance of a real-time operating system in applications demanding immediate and deterministic responses.
- b) Explain the concept of system call in an operating system. Discuss its purpose, the types of system calls.
- c) Explain the structure and content of the Process Control Block and its role in managing and maintaining process-related information.
- d) What is operating system? Explain the different services provided by operating system.
- e) Define the critical section problem and its significance in concurrent programming, emphasizing the need for mutual exclusion.

Q.3 Attempt Any Two: 12

- a) Consider the following set of processes, with the length of the CPU burst time given in milliseconds.

Process	Burst Time	Arrival Time
P1	15	0
P2	6	2
P3	7	3
P4	5	5

- How will these processes be scheduled according to FCFS scheduling algorithm? Compute the average waiting time and average turnaround time.
- b) Describe different models of threading, such as many-to-one, one-to-one, and many-to-many threading models, highlighting their advantages and drawbacks.
- c) Explain in detail the shared memory system of interprocess communication.

Section – II

- Q.4 Attempt Any Four:** **16**
- a) Compare between internal and external fragmentation.
 - b) What is Banker's algorithm in OS? How Banker's algorithm is helpful in deciding safe sequence of process execution?
 - c) Consider page reference string 6, 7, 8, 9, 6, 7, 1, 6, 7, 8, 9, 1, 7, 9, Find out the number of page faults if 3-page frames are provided in case of least recently used page replacement mechanism.
 - d) Elaborate necessary conditions to produce deadlock in operating systems.
 - e) What is segmentation and types of segmentation in operating systems? What is segmentation table? Elaborate advantages of segmentation in OS.
- Q.5 Attempt Any Two:** **12**
- a) Describe terms associated with memory control
 - 1) Logical address
 - 2) Virtual address space
 - 3) Physical address and
 - 4) Physical address spaceDiscuss paging related to operating system.
 - b) Discuss following methods used to keep track of free space in the storage.
 - 1) Bitmap method
 - 2) Linked list and
 - 3) grouping and counting.Specify advantages and disadvantages of free space management techniques.
 - c) Why is memory management required? Discuss first fit, best fit and worst fit memory allocation approaches along with their advantages.

Seat No.	
----------	--

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answers.

14

- 1) Semaphore is a/an _____ to solve the critical section problem.
 - a) hardware for a system
 - b) special program for a system
 - c) integer variable
 - d) None of these
- 2) Which type of operating system is designed to manage a network of computers?
 - a) Simple batch system
 - b) Multiprogramming system
 - c) Time sharing system
 - d) Distributed operating system
- 3) Physical memory is broken into fixed-sized blocks called _____.
 - a) frames
 - b) pages
 - c) backing store
 - d) none of the mentioned
- 4) The number of resources requested by a process _____.
 - a) must always be less than the total number of resources available in the system
 - b) must always be equal to the total number of resources available in the system
 - c) must not exceed the total number of resources available in the system
 - d) must exceed the total number of resources available in the system
- 5) To create a file _____.
 - a) allocate the space in file system
 - b) make an entry for new file in directory
 - c) allocate the space in file system & make an entry for new file in directory
 - d) none of the mentioned
- 6) Which of the following condition is required for a deadlock to be possible?
 - a) mutual exclusion
 - b) a process may hold allocated resources while awaiting assignment of other resources
 - c) no resource can be forcibly removed from a process holding it
 - d) all the mentioned

- 7) Every address generated by the CPU is divided into two parts. They are _____.
a) frame bit & page number b) page number & page offset
c) page offset & frame bit d) frame offset & page offset
- 8) Program always deals with _____.
a) logical address b) absolute address
c) physical address d) relative address
- 9) In contiguous allocation _____.
a) each file must occupy a set of contiguous blocks on the disk
b) each file is a linked list of disk blocks
c) all the pointers to scattered blocks are placed together in one location
d) none of the mentioned
- 10) In Unix, which system call creates the new process?
a) Fork b) Create
c) New d) None of the mentioned
- 11) A process is selected from the _____ queue by the _____ scheduler, to be executed.
a) blocked, short term b) wait, long term
c) ready, short term d) ready, long term
- 12) Response time is: _____.
a) the total time taken from the submission time till the completion time.
b) the total time taken from the submission time till the first response is produced.
c) the total time taken from submission time till the response is output.
d) None of these.
- 13) Termination of the process terminates _____.
a) first thread of the process
b) first two threads of the process
c) all threads within the process
d) no thread within the process
- 14) A parent process calling _____ system call will be suspended until children processes terminate.
a) fork b) wait
c) exit d) exec

Seat No.	
----------	--

Set **S**

T.Y. (BTech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Operating Systems (BTN04605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

Q.2 Attempt Any Four: 16

- a) Describe the characteristics and importance of a real-time operating system in applications demanding immediate and deterministic responses.
- b) Explain the concept of system call in an operating system. Discuss its purpose, the types of system calls.
- c) Explain the structure and content of the Process Control Block and its role in managing and maintaining process-related information.
- d) What is operating system? Explain the different services provided by operating system.
- e) Define the critical section problem and its significance in concurrent programming, emphasizing the need for mutual exclusion.

Q.3 Attempt Any Two: 12

- a) Consider the following set of processes, with the length of the CPU burst time given in milliseconds.

Process	Burst Time	Arrival Time
P1	15	0
P2	6	2
P3	7	3
P4	5	5

- How will these processes be scheduled according to FCFS scheduling algorithm? Compute the average waiting time and average turnaround time.
- b) Describe different models of threading, such as many-to-one, one-to-one, and many-to-many threading models, highlighting their advantages and drawbacks.
- c) Explain in detail the shared memory system of interprocess communication.

Section – II

- Q.4 Attempt Any Four:** **16**
- a) Compare between internal and external fragmentation.
 - b) What is Banker's algorithm in OS? How Banker's algorithm is helpful in deciding safe sequence of process execution?
 - c) Consider page reference string 6, 7, 8, 9, 6, 7, 1, 6, 7, 8, 9, 1, 7, 9, Find out the number of page faults if 3-page frames are provided in case of least recently used page replacement mechanism.
 - d) Elaborate necessary conditions to produce deadlock in operating systems.
 - e) What is segmentation and types of segmentation in operating systems? What is segmentation table? Elaborate advantages of segmentation in OS.
- Q.5 Attempt Any Two:** **12**
- a) Describe terms associated with memory control
 - 1) Logical address
 - 2) Virtual address space
 - 3) Physical address and
 - 4) Physical address spaceDiscuss paging related to operating system.
 - b) Discuss following methods used to keep track of free space in the storage.
 - 1) Bitmap method
 - 2) Linked list and
 - 3) grouping and counting.Specify advantages and disadvantages of free space management techniques.
 - c) Why is memory management required? Discuss first fit, best fit and worst fit memory allocation approaches along with their advantages.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/ML -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is NOT a step in the machine learning workflow?

a) Data preprocessing	b) Model evaluation
c) Model deployment	d) Data visualization
- 2) What is Unsupervised learning?
 - a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data
- 3) What is the purpose of a confusion matrix in classification?
 - a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 4) Which of the following evaluation metrics is typically used for classification problems?

a) Mean Absolute Error (MAE)	b) Root Mean Squared Error (RMSE)
c) Accuracy	d) R-squared (R^2)
- 5) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
 - a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations
- 6) In K-means clustering, what does "K" represent?

a) The number of features	b) The number of clusters
c) The number of data points	d) The number of iterations
- 7) The principle underlying the Market Basket Analysis is known as _____.

a) Association rule	b) Bisecting rule
c) k-means	d) Bayes' theorem

- 8) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:
- a) Image Detection
 - b) Medical Diagnosis
 - c) Learning Language
 - d) Stock Analysis
- 9) Single-layer perceptron is able to deal with _____.
- a) linearly separable data
 - b) non-linearly separable data
 - c) linearly inseparable data
 - d) none of the above
- 10) Which of the following is NOT a common type of machine learning?
- a) Supervised Learning
 - b) Unsupervised Learning
 - c) Reinforcement Learning
 - d) Deterministic Learning
- 11) What is the primary difference between binary and multiclass classification?
- a) Binary has two classes, while multiclass has more than two classes
 - b) Binary classification is unsupervised, while multiclass is supervised
 - c) Binary classification uses regression techniques
 - d) Multiclass classification uses clustering algorithms
- 12) Which of the following is an example of a regression problem?
- a) Predicting whether an email is spam or not
 - b) Identifying the objects in an image
 - c) Predicting the price of a house based on its features
 - d) Grouping customers into different segments
- 13) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?
- a) 1
 - b) 2
 - c) 4
 - d) 8
- 14) What is a feedforward neural network?
- a) A network where information travels in both directions
 - b) A network with multiple hidden layers
 - c) A network where information flows in one direction, from input to output
 - d) A network with recurrent connections

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/MI -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy

Precision

Recall

F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

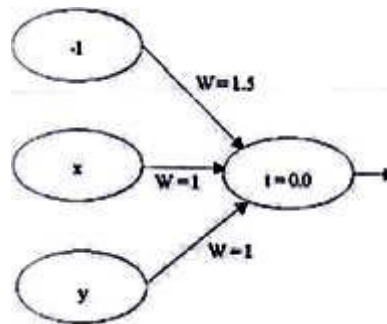
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/ML -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:

a) Image Detection	b) Medical Diagnosis
c) Learning Language	d) Stock Analysis
- 2) Single-layer perceptron is able to deal with _____.

a) linearly separable data	b) non-linearly separable data
c) linearly inseparable data	d) none of the above
- 3) Which of the following is NOT a common type of machine learning?

a) Supervised Learning	b) Unsupervised Learning
c) Reinforcement Learning	d) Deterministic Learning
- 4) What is the primary difference between binary and multiclass classification?

a) Binary has two classes, while multiclass has more than two classes	b) Binary classification is unsupervised, while multiclass is supervised
c) Binary classification uses regression techniques	d) Multiclass classification uses clustering algorithms
- 5) Which of the following is an example of a regression problem?

a) Predicting whether an email is spam or not	b) Identifying the objects in an image
c) Predicting the price of a house based on its features	d) Grouping customers into different segments
- 6) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?

a) 1	b) 2
c) 4	d) 8
- 7) What is a feedforward neural network?

a) A network where information travels in both directions	b) A network with multiple hidden layers
c) A network where information flows in one direction, from input to output	d) A network with recurrent connections

- 8) Which of the following is NOT a step in the machine learning workflow?
- a) Data preprocessing
 - b) Model evaluation
 - c) Model deployment
 - d) Data visualization
- 9) What is Unsupervised learning?
- a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data
- 10) What is the purpose of a confusion matrix in classification?
- a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 11) Which of the following evaluation metrics is typically used for classification problems?
- a) Mean Absolute Error (MAE)
 - b) Root Mean Squared Error (RMSE)
 - c) Accuracy
 - d) R-squared (R^2)
- 12) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
- a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations
- 13) In K-means clustering, what does "K" represent?
- a) The number of features
 - b) The number of clusters
 - c) The number of data points
 - d) The number of iterations
- 14) The principle underlying the Market Basket Analysis is known as _____.
- a) Association rule
 - b) Bisecting rule
 - c) k-means
 - d) Bayes' theorem

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/MI -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy

Precision

Recall

F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

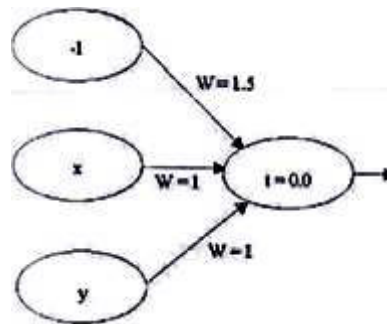
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
-----------------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/ML -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the primary difference between binary and multiclass classification?
 - a) Binary has two classes, while multiclass has more than two classes
 - b) Binary classification is unsupervised, while multiclass is supervised
 - c) Binary classification uses regression techniques
 - d) Multiclass classification uses clustering algorithms
- 2) Which of the following is an example of a regression problem?
 - a) Predicting whether an email is spam or not
 - b) Identifying the objects in an image
 - c) Predicting the price of a house based on its features
 - d) Grouping customers into different segments
- 3) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?

a) 1	b) 2
c) 4	d) 8
- 4) What is a feedforward neural network?
 - a) A network where information travels in both directions
 - b) A network with multiple hidden layers
 - c) A network where information flows in one direction, from input to output
 - d) A network with recurrent connections
- 5) Which of the following is NOT a step in the machine learning workflow?

a) Data preprocessing	b) Model evaluation
c) Model deployment	d) Data visualization
- 6) What is Unsupervised learning?
 - a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data

- 7) What is the purpose of a confusion matrix in classification?
- To confuse the model during training
 - To visualize the dataset
 - To evaluate the performance of a classification model
 - To create additional features
- 8) Which of the following evaluation metrics is typically used for classification problems?
- Mean Absolute Error (MAE)
 - Root Mean Squared Error (RMSE)
 - Accuracy
 - R-squared (R^2)
- 9) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
- The number of features
 - The number of classes
 - The number of neighbors to consider
 - The number of iterations
- 10) In K-means clustering, what does "K" represent?
- The number of features
 - The number of clusters
 - The number of data points
 - The number of iterations
- 11) The principle underlying the Market Basket Analysis is known as _____.
- Association rule
 - Bisecting rule
 - k-means
 - Bayes' theorem
- 12) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:
- Image Detection
 - Medical Diagnosis
 - Learning Language
 - Stock Analysis
- 13) Single-layer perceptron is able to deal with _____.
- linearly separable data
 - non-linearly separable data
 - linearly inseparable data
 - none of the above
- 14) Which of the following is NOT a common type of machine learning?
- Supervised Learning
 - Unsupervised Learning
 - Reinforcement Learning
 - Deterministic Learning

Seat No.	
-------------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/MI -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy

Precision

Recall

F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

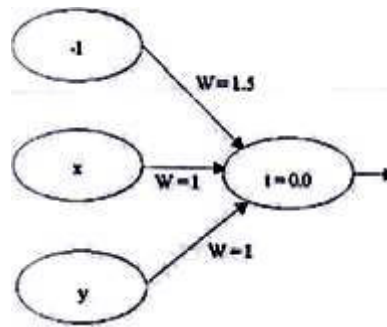
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/ML -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In K-means clustering, what does "K" represent?
 - a) The number of features
 - b) The number of clusters
 - c) The number of data points
 - d) The number of iterations
- 2) The principle underlying the Market Basket Analysis is known as _____.
 - a) Association rule
 - b) Bisecting rule
 - c) k-means
 - d) Bayes' theorem
- 3) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:
 - a) Image Detection
 - b) Medical Diagnosis
 - c) Learning Language
 - d) Stock Analysis
- 4) Single-layer perceptron is able to deal with _____.
 - a) linearly separable data
 - b) non-linearly separable data
 - c) linearly inseparable data
 - d) none of the above
- 5) Which of the following is NOT a common type of machine learning?
 - a) Supervised Learning
 - b) Unsupervised Learning
 - c) Reinforcement Learning
 - d) Deterministic Learning
- 6) What is the primary difference between binary and multiclass classification?
 - a) Binary has two classes, while multiclass has more than two classes
 - b) Binary classification is unsupervised, while multiclass is supervised
 - c) Binary classification uses regression techniques
 - d) Multiclass classification uses clustering algorithms
- 7) Which of the following is an example of a regression problem?
 - a) Predicting whether an email is spam or not
 - b) Identifying the objects in an image
 - c) Predicting the price of a house based on its features
 - d) Grouping customers into different segments
- 8) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?
 - a) 1
 - b) 2
 - c) 4
 - d) 8

- 9) What is a feedforward neural network?
- a) A network where information travels in both directions
 - b) A network with multiple hidden layers
 - c) A network where information flows in one direction, from input to output
 - d) A network with recurrent connections
- 10) Which of the following is NOT a step in the machine learning workflow?
- a) Data preprocessing
 - b) Model evaluation
 - c) Model deployment
 - d) Data visualization
- 11) What is Unsupervised learning?
- a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data
- 12) What is the purpose of a confusion matrix in classification?
- a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 13) Which of the following evaluation metrics is typically used for classification problems?
- a) Mean Absolute Error (MAE)
 - b) Root Mean Squared Error (RMSE)
 - c) Accuracy
 - d) R-squared (R^2)
- 14) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
- a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
AI/MI -Machine Learning (BTN04612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy
Precision
Recall
F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

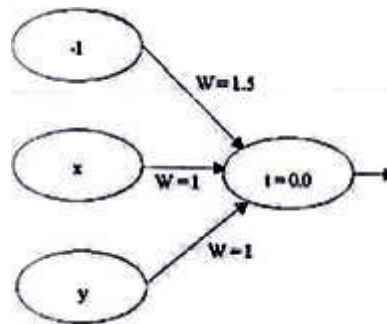
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
b) Discuss the steps followed in Backpropagation algorithm.
c) What are different activation functions in ANN?
d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) Who is the father of Machine Learning?
 - a) Geoffrey Everest Hinton
 - b) Geoffrey Hill
 - c) Geoffrey Chaucer
 - d) None of the above
- 2) Which is FALSE regarding regression?
 - a) It may be used for interpretation
 - b) It is used for prediction
 - c) It discovers causal relationships
 - d) It relates inputs to outputs
- 3) Reinforcement learning is _____.
 - a) Supervised Learning
 - b) Unsupervised Learning
 - c) Award-Based Learning
 - d) None of above
- 4) Which ONE of the following are regression tasks?
 - a) Predict the age of a person
 - b) Predict the country from where the person comes from
 - c) Predict whether the price of petroleum will increase tomorrow
 - d) Predict whether a document is related to science
- 5) What is over fitting?
 - a) Poor result in Training and poor result in test
 - b) Great result in Training and poor result in test
 - c) Great result in Training and Great result in test
 - d) Poor result in Training and Great result in test
- 6) Which one of the following statements is TRUE for a Decision Tree?
 - a) Decision tree is only suitable for the classification problem statement
 - b) In a decision tree, the entropy of a node decreases as we go down a decision tree
 - c) In a decision tree, entropy determines purity
 - d) Decision tree can only be used for only numeric valued and continuous attributes
- 7) Which of the following is the centroid-based clustering method?
 - a) K-means clustering
 - b) DBSCAN clustering
 - c) Hierarchical clustering
 - d) KNN Algorithm

- 8) Which of the following statement is TRUE about the Association rule method?
- a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 9) The most widely used metrics and tools to access a classification model are ____.
- a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 10) What is back propagation?
- a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above
- 11) What is Perceptron?
- a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network
- 12) Applications of NN (Neural Network).
- a) Risk management
 - b) Data validation
 - c) Sales forecasting
 - d) All of the above
- 13) When performing regression or classification which of the following is the correct way to preprocess the data?
- a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 14) Bayes rule can be used for: _____.
- a) Solving queries
 - b) Increasing complexity
 - c) Answering probabilistic query
 - d) Decreasing complexity

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options. 14

- 1) Which of the following statement is TRUE about the Association rule method?
 - a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 2) The most widely used metrics and tools to access a classification model are _____.
 - a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 3) What is back propagation?
 - a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above
- 4) What is Perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network
- 5) Applications of NN (Neural Network).
 - a) Risk management
 - b) Data validation
 - c) Sales forecasting
 - d) All of the above
- 6) When performing regression or classification which of the following is the correct way to preprocess the data?
 - a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 7) Bayes rule can be used for: _____.
 - a) Solving queries
 - b) Increasing complexity
 - c) Answering probabilistic query
 - d) Decreasing complexity

- 8) Who is the father of Machine Learning?
a) Geoffrey Everest Hinton b) Geoffrey Hill
c) Geoffrey Chaucer d) None of the above
- 9) Which is FALSE regarding regression?
a) It may be used for interpretation b) It is used for prediction
c) It discovers causal relationships d) It relates inputs to outputs
- 10) Reinforcement learning is _____.
a) Supervised Learning b) Unsupervised Learning
c) Award-Based Learning d) None of above
- 11) Which ONE of the following are regression tasks?
a) Predict the age of a person
b) Predict the country from where the person comes from
c) Predict whether the price of petroleum will increase tomorrow
d) Predict whether a document is related to science
- 12) What is over fitting?
a) Poor result in Training and poor result in test
b) Great result in Training and poor result in test
c) Great result in Training and Great result in test
d) Poor result in Training and Great result in test
- 13) Which one of the following statements is TRUE for a Decision Tree?
a) Decision tree is only suitable for the classification problem statement
b) In a decision tree, the entropy of a node decreases as we go down a decision tree
c) In a decision tree, entropy determines purity
d) Decision tree can only be used for only numeric valued and continuous attributes
- 14) Which of the following is the centroid-based clustering method?
a) K-means clustering b) DBSCAN clustering
c) Hierarchical clustering d) KNN Algorithm

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) What is Perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network
- 2) Applications of NN (Neural Network).

a) Risk management	b) Data validation
c) Sales forecasting	d) All of the above
- 3) When performing regression or classification which of the following is the correct way to preprocess the data?
 - a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 4) Bayes rule can be used for: _____.

a) Solving queries	b) Increasing complexity
c) Answering probabilistic query	d) Decreasing complexity
- 5) Who is the father of Machine Learning?

a) Geoffrey Everest Hinton	b) Geoffrey Hill
c) Geoffrey Chaucer	d) None of the above
- 6) Which is FALSE regarding regression?

a) It may be used for interpretation	b) It is used for prediction
c) It discovers causal relationships	d) It relates inputs to outputs
- 7) Reinforcement learning is _____.

a) Supervised Learning	b) Unsupervised Learning
c) Award-Based Learning	d) None of above

- 8) Which ONE of the following are regression tasks?
- a) Predict the age of a person
 - b) Predict the country from where the person comes from
 - c) Predict whether the price of petroleum will increase tomorrow
 - d) Predict whether a document is related to science
- 9) What is over fitting?
- a) Poor result in Training and poor result in test
 - b) Great result in Training and poor result in test
 - c) Great result in Training and Great result in test
 - d) Poor result in Training and Great result in test
- 10) Which one of the following statements is TRUE for a Decision Tree?
- a) Decision tree is only suitable for the classification problem statement
 - b) In a decision tree, the entropy of a node decreases as we go down a decision tree
 - c) In a decision tree, entropy determines purity
 - d) Decision tree can only be used for only numeric valued and continuous attributes
- 11) Which of the following is the centroid-based clustering method?
- a) K-means clustering
 - b) DBSCAN clustering
 - c) Hierarchical clustering
 - d) KNN Algorithm
- 12) Which of the following statement is TRUE about the Association rule method?
- a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 13) The most widely used metrics and tools to access a classification model are ____.
- a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 14) What is back propagation?
- a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) Which one of the following statements is TRUE for a Decision Tree?
 - a) Decision tree is only suitable for the classification problem statement
 - b) In a decision tree, the entropy of a node decreases as we go down a decision tree
 - c) In a decision tree, entropy determines purity
 - d) Decision tree can only be used for only numeric valued and continuous attributes
- 2) Which of the following is the centroid-based clustering method?
 - a) K-means clustering
 - b) DBSCAN clustering
 - c) Hierarchical clustering
 - d) KNN Algorithm
- 3) Which of the following statement is TRUE about the Association rule method?
 - a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 4) The most widely used metrics and tools to access a classification model are _____.
 - a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 5) What is back propagation?
 - a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above
- 6) What is Perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network

- 7) Applications of NN (Neural Network).
- a) Risk management
 - b) Data validation
 - c) Sales forecasting
 - d) All of the above
- 8) When performing regression or classification which of the following is the correct way to preprocess the data?
- a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 9) Bayes rule can be used for: _____.
- a) Solving queries
 - b) Increasing complexity
 - c) Answering probabilistic query
 - d) Decreasing complexity
- 10) Who is the father of Machine Learning?
- a) Geoffrey Everest Hinton
 - b) Geoffrey Hill
 - c) Geoffrey Chaucer
 - d) None of the above
- 11) Which is FALSE regarding regression?
- a) It may be used for interpretation
 - b) It is used for prediction
 - c) It discovers causal relationships
 - d) It relates inputs to outputs
- 12) Reinforcement learning is _____.
- a) Supervised Learning
 - b) Unsupervised Learning
 - c) Award-Based Learning
 - d) None of above
- 13) Which ONE of the following are regression tasks?
- a) Predict the age of a person
 - b) Predict the country from where the person comes from
 - c) Predict whether the price of petroleum will increase tomorrow
 - d) Predict whether a document is related to science
- 14) What is over fitting?
- a) Poor result in Training and poor result in test
 - b) Great result in Training and poor result in test
 - c) Great result in Training and Great result in test
 - d) Poor result in Training and Great result in test

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS ENGINEERING
Data Science Machine Learning (BTN04613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options

14

- 1) What is the main advantage of using cloud computing over traditional data centers?

a) Cost-effectiveness	b) Higher performance
c) Increased security	d) Greater control

- 2) Which of the following is an example of an Infrastructure as a Service (IaaS) offering?

a) Amazon EC2	b) Amazon S3
c) Amazon RDS	d) Amazon SNS

- 3) What is the term used to describe the ability to automatically scale computing resources based on demand?

a) Elasticity	b) Scalability
c) Virtualization	d) Agility

- 4) Which term is used to describe the practice of running multiple virtual machines on a single physical server?

a) Elasticity	b) Scalability
c) Virtualization	d) Agility

- 5) What is the AWS root user in Identity and Access Management (IAM)?

a) The primary administrator of an AWS account	
b) A user with restricted access to AWS services	
c) A temporary user created for specific tasks	
d) A user with read-only access to AWS resources	

- 6) Which AWS service is used for temporary access to AWS resources with limited permissions?

a) Amazon S3	b) AWS CLI
c) AWS STS	d) Amazon RDS

- 7) What does VPC stand for in the context of AWS?
a) Virtual Public Cloud b) Virtual Private Cloud
c) Virtual Provisioning Center d) Virtual Processing Cluster
- 8) What is a subnet in AWS VPC?
a) A virtual machine within a VPC
b) A group of VPC instances
c) A range of IP addresses in a VPC
d) A virtual network within a VPC
- 9) What does EC2 stand for in the context of AWS?
a) Elastic Computing Cloud b) Elastic Container Cloud
c) Elastic Compute Cloud d) Elastic Cache Cloud
- 10) What factors contribute to the pricing of EC2 instances?
a) Instance type, instance size, and data transfer
b) Number of VPCs, subnet size, and storage capacity
c) Availability zones, security groups, and IAM policies
d) Operating system, database engine, and web server software
- 11) What is Elastic Load Balancer (ELB) in AWS?
a) A service for automatically scaling EC2 instances
b) A managed service for distributing incoming application traffic
c) A tool for monitoring performance metrics of AWS resources
d) A database service for storing and retrieving data
- 12) What is the best practice for using Elastic Load Balancer (ELB) in AWS?
a) Deploying a single ELB for all applications and services
b) Allocating a static IP address for the ELB
c) Using SSL/TLS termination at the EC2 instances
d) Enabling access logs for ELB only during maintenance periods
- 13) What does S3 stand for in the context of AWS?
a) Simple Storage Service b) Secure Storage System
c) Structured Storage Solution d) Scalable Storage Service
- 14) How can you create a bucket in Amazon S3?
a) Using the AWS CLI only
b) Using the AWS Management Console or AWS CLI
c) Creating a bucket is not possible in S3
d) Contacting AWS support to create a bucket

Seat No.	
---------------------	--

Set

P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) What is the history of cloud computing and how has it evolved over time?
 - b) Explain the basic concepts of AWS and its key services.
 - c) How can you access AWS services and what is the AWS overview?
 - d) What is the AWS root user? Why is it important to understand the root user account?

- Q.3 Attempt any TWO. 16**
- a) What are IAM policies? Explain the different types of policies available in IAM and how they are used to control user access to AWS resources.
 - b) How can IAM be used to implement least privilege access in AWS? Explain the concept of least privilege access and how it can be implemented using IAM policies and roles.
 - c) What is NAT in VPC? Explain how NAT gateways can be used to enable outbound internet traffic for resources within a private subnet.

Section – II

- Q.4 Attempt any THREE 12**
- a) What is the Elastic Compute Cloud (EC2) and how does it work?
 - b) How is the pricing structure for EC2 instances determined?
 - c) Explain the lifecycle of an EC2 instance?
 - d) What are some best practices for effectively configuring and managing ELB?

- Q.5 Attempt any TWO 16**
- a) What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
 - b) How does CloudWatch Logs integrate with ELB and how can it be utilized for troubleshooting and analysis?
 - c) What connect is ClassicLink in VPC? Explain how ClassicLink can be used to EC2 instances in VPC to instances in the EC2-Classic platform.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options**14**

- 1) What is a subnet in AWS VPC?
 - a) A virtual machine within a VPC
 - b) A group of VPC instances
 - c) A range of IP addresses in a VPC
 - d) A virtual network within a VPC
- 2) What does EC2 stand for in the context of AWS?
 - a) Elastic Computing Cloud
 - b) Elastic Container Cloud
 - c) Elastic Compute Cloud
 - d) Elastic Cache Cloud
- 3) What factors contribute to the pricing of EC2 instances?
 - a) Instance type, instance size, and data transfer
 - b) Number of VPCs, subnet size, and storage capacity
 - c) Availability zones, security groups, and IAM policies
 - d) Operating system, database engine, and web server software
- 4) What is Elastic Load Balancer (ELB) in AWS?
 - a) A service for automatically scaling EC2 instances
 - b) A managed service for distributing incoming application traffic
 - c) A tool for monitoring performance metrics of AWS resources
 - d) A database service for storing and retrieving data
- 5) What is the best practice for using Elastic Load Balancer (ELB) in AWS?
 - a) Deploying a single ELB for all applications and services
 - b) Allocating a static IP address for the ELB
 - c) Using SSL/TLS termination at the EC2 instances
 - d) Enabling access logs for ELB only during maintenance periods
- 6) What does S3 stand for in the context of AWS?
 - a) Simple Storage Service
 - b) Secure Storage System
 - c) Structured Storage Solution
 - d) Scalable Storage Service
- 7) How can you create a bucket in Amazon S3?
 - a) Using the AWS CLI only
 - b) Using the AWS Management Console or AWS CLI
 - c) Creating a bucket is not possible in S3
 - d) Contacting AWS support to create a bucket

- 8) What is the main advantage of using cloud computing over traditional data centers?
- a) Cost-effectiveness
 - b) Higher performance
 - c) Increased security
 - d) Greater control
- 9) Which of the following is an example of an Infrastructure as a Service (IaaS) offering?
- a) Amazon EC2
 - b) Amazon S3
 - c) Amazon RDS
 - d) Amazon SNS
- 10) What is the term used to describe the ability to automatically scale computing resources based on demand?
- a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility
- 11) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
- a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility
- 12) What is the AWS root user in Identity and Access Management (IAM)?
- a) The primary administrator of an AWS account
 - b) A user with restricted access to AWS services
 - c) A temporary user created for specific tasks
 - d) A user with read-only access to AWS resources
- 13) Which AWS service is used for temporary access to AWS resources with limited permissions?
- a) Amazon S3
 - b) AWS CLI
 - c) AWS STS
 - d) Amazon RDS
- 14) What does VPC stand for in the context of AWS?
- a) Virtual Public Cloud
 - b) Virtual Private Cloud
 - c) Virtual Provisioning Center
 - d) Virtual Processing Cluster

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) What is the history of cloud computing and how has it evolved over time?
 - b) Explain the basic concepts of AWS and its key services.
 - c) How can you access AWS services and what is the AWS overview?
 - d) What is the AWS root user? Why is it important to understand the root user account?

- Q.3 Attempt any TWO. 16**
- a) What are IAM policies? Explain the different types of policies available in IAM and how they are used to control user access to AWS resources.
 - b) How can IAM be used to implement least privilege access in AWS? Explain the concept of least privilege access and how it can be implemented using IAM policies and roles.
 - c) What is NAT in VPC? Explain how NAT gateways can be used to enable outbound internet traffic for resources within a private subnet.

Section – II

- Q.4 Attempt any THREE 12**
- a) What is the Elastic Compute Cloud (EC2) and how does it work?
 - b) How is the pricing structure for EC2 instances determined?
 - c) Explain the lifecycle of an EC2 instance?
 - d) What are some best practices for effectively configuring and managing ELB?

- Q.5 Attempt any TWO 16**
- a) What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
 - b) How does CloudWatch Logs integrate with ELB and how can it be utilized for troubleshooting and analysis?
 - c) What connect is ClassicLink in VPC? Explain how ClassicLink can be used to EC2 instances in VPC to instances in the EC2-Classic platform.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options**14**

- 1) What is Elastic Load Balancer (ELB) in AWS?
 - a) A service for automatically scaling EC2 instances
 - b) A managed service for distributing incoming application traffic
 - c) A tool for monitoring performance metrics of AWS resources
 - d) A database service for storing and retrieving data
- 2) What is the best practice for using Elastic Load Balancer (ELB) in AWS?
 - a) Deploying a single ELB for all applications and services
 - b) Allocating a static IP address for the ELB
 - c) Using SSL/TLS termination at the EC2 instances
 - d) Enabling access logs for ELB only during maintenance periods
- 3) What does S3 stand for in the context of AWS?
 - a) Simple Storage Service
 - b) Secure Storage System
 - c) Structured Storage Solution
 - d) Scalable Storage Service
- 4) How can you create a bucket in Amazon S3?
 - a) Using the AWS CLI only
 - b) Using the AWS Management Console or AWS CLI
 - c) Creating a bucket is not possible in S3
 - d) Contacting AWS support to create a bucket
- 5) What is the main advantage of using cloud computing over traditional data centers?
 - a) Cost-effectiveness
 - b) Higher performance
 - c) Increased security
 - d) Greater control
- 6) Which of the following is an example of an Infrastructure as a Service (IaaS) offering?
 - a) Amazon EC2
 - b) Amazon S3
 - c) Amazon RDS
 - d) Amazon SNS
- 7) What is the term used to describe the ability to automatically scale computing resources based on demand?
 - a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility

- 8) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
- a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility
- 9) What is the AWS root user in Identity and Access Management (IAM)?
- a) The primary administrator of an AWS account
 - b) A user with restricted access to AWS services
 - c) A temporary user created for specific tasks
 - d) A user with read-only access to AWS resources
- 10) Which AWS service is used for temporary access to AWS resources with limited permissions?
- a) Amazon S3
 - b) AWS CLI
 - c) AWS STS
 - d) Amazon RDS
- 11) What does VPC stand for in the context of AWS?
- a) Virtual Public Cloud
 - b) Virtual Private Cloud
 - c) Virtual Provisioning Center
 - d) Virtual Processing Cluster
- 12) What is a subnet in AWS VPC?
- a) A virtual machine within a VPC
 - b) A group of VPC instances
 - c) A range of IP addresses in a VPC
 - d) A virtual network within a VPC
- 13) What does EC2 stand for in the context of AWS?
- a) Elastic Computing Cloud
 - b) Elastic Container Cloud
 - c) Elastic Compute Cloud
 - d) Elastic Cache Cloud
- 14) What factors contribute to the pricing of EC2 instances?
- a) Instance type, instance size, and data transfer
 - b) Number of VPCs, subnet size, and storage capacity
 - c) Availability zones, security groups, and IAM policies
 - d) Operating system, database engine, and web server software

Seat No.	
---------------------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) What is the history of cloud computing and how has it evolved over time?
 - b) Explain the basic concepts of AWS and its key services.
 - c) How can you access AWS services and what is the AWS overview?
 - d) What is the AWS root user? Why is it important to understand the root user account?

- Q.3 Attempt any TWO. 16**
- a) What are IAM policies? Explain the different types of policies available in IAM and how they are used to control user access to AWS resources.
 - b) How can IAM be used to implement least privilege access in AWS? Explain the concept of least privilege access and how it can be implemented using IAM policies and roles.
 - c) What is NAT in VPC? Explain how NAT gateways can be used to enable outbound internet traffic for resources within a private subnet.

Section – II

- Q.4 Attempt any THREE 12**
- a) What is the Elastic Compute Cloud (EC2) and how does it work?
 - b) How is the pricing structure for EC2 instances determined?
 - c) Explain the lifecycle of an EC2 instance?
 - d) What are some best practices for effectively configuring and managing ELB?

- Q.5 Attempt any TWO 16**
- a) What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
 - b) How does CloudWatch Logs integrate with ELB and how can it be utilized for troubleshooting and analysis?
 - c) What connect is ClassicLink in VPC? Explain how ClassicLink can be used to EC2 instances in VPC to instances in the EC2-Classical platform.

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options**14**

- 1) Which AWS service is used for temporary access to AWS resources with limited permissions?
 - a) Amazon S3
 - b) AWS CLI
 - c) AWS STS
 - d) Amazon RDS
- 2) What does VPC stand for in the context of AWS?
 - a) Virtual Public Cloud
 - b) Virtual Private Cloud
 - c) Virtual Provisioning Center
 - d) Virtual Processing Cluster
- 3) What is a subnet in AWS VPC?
 - a) A virtual machine within a VPC
 - b) A group of VPC instances
 - c) A range of IP addresses in a VPC
 - d) A virtual network within a VPC
- 4) What does EC2 stand for in the context of AWS?
 - a) Elastic Computing Cloud
 - b) Elastic Container Cloud
 - c) Elastic Compute Cloud
 - d) Elastic Cache Cloud
- 5) What factors contribute to the pricing of EC2 instances?
 - a) Instance type, instance size, and data transfer
 - b) Number of VPCs, subnet size, and storage capacity
 - c) Availability zones, security groups, and IAM policies
 - d) Operating system, database engine, and web server software
- 6) What is Elastic Load Balancer (ELB) in AWS?
 - a) A service for automatically scaling EC2 instances
 - b) A managed service for distributing incoming application traffic
 - c) A tool for monitoring performance metrics of AWS resources
 - d) A database service for storing and retrieving data
- 7) What is the best practice for using Elastic Load Balancer (ELB) in AWS?
 - a) Deploying a single ELB for all applications and services
 - b) Allocating a static IP address for the ELB
 - c) Using SSL/TLS termination at the EC2 instances
 - d) Enabling access logs for ELB only during maintenance periods

- 8) What does S3 stand for in the context of AWS?
a) Simple Storage Service b) Secure Storage System
c) Structured Storage Solution d) Scalable Storage Service
- 9) How can you create a bucket in Amazon S3?
a) Using the AWS CLI only
b) Using the AWS Management Console or AWS CLI
c) Creating a bucket is not possible in S3
d) Contacting AWS support to create a bucket
- 10) What is the main advantage of using cloud computing over traditional data centers?
a) Cost-effectiveness b) Higher performance
c) Increased security d) Greater control
- 11) Which of the following is an example of an Infrastructure as a Service (IaaS) offering?
a) Amazon EC2 b) Amazon S3
c) Amazon RDS d) Amazon SNS
- 12) What is the term used to describe the ability to automatically scale computing resources based on demand?
a) Elasticity b) Scalability
c) Virtualization d) Agility
- 13) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
a) Elasticity b) Scalability
c) Virtualization d) Agility
- 14) What is the AWS root user in Identity and Access Management (IAM)?
a) The primary administrator of an AWS account
b) A user with restricted access to AWS services
c) A temporary user created for specific tasks
d) A user with read-only access to AWS resources

Seat No.	
-----------------	--

Set

S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IoT Cloud Platform (BTN04614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) What is the history of cloud computing and how has it evolved over time?
 - b) Explain the basic concepts of AWS and its key services.
 - c) How can you access AWS services and what is the AWS overview?
 - d) What is the AWS root user? Why is it important to understand the root user account?

- Q.3 Attempt any TWO. 16**
- a) What are IAM policies? Explain the different types of policies available in IAM and how they are used to control user access to AWS resources.
 - b) How can IAM be used to implement least privilege access in AWS? Explain the concept of least privilege access and how it can be implemented using IAM policies and roles.
 - c) What is NAT in VPC? Explain how NAT gateways can be used to enable outbound internet traffic for resources within a private subnet.

Section – II

- Q.4 Attempt any THREE 12**
- a) What is the Elastic Compute Cloud (EC2) and how does it work?
 - b) How is the pricing structure for EC2 instances determined?
 - c) Explain the lifecycle of an EC2 instance?
 - d) What are some best practices for effectively configuring and managing ELB?

- Q.5 Attempt any TWO 16**
- a) What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
 - b) How does CloudWatch Logs integrate with ELB and how can it be utilized for troubleshooting and analysis?
 - c) What connect is ClassicLink in VPC? Explain how ClassicLink can be used to EC2 instances in VPC to instances in the EC2-Classic platform.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (BTN04701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A microwave junction is supposed to be matched at all ports if in the S matrix _____.
 - a) all the diagonal elements are zero
 - b) all the diagonal elements are equal but not zero
 - c) all the diagonal elements are complex
 - d) is Hermitian
- 2) The cut-off frequency of a waveguide depends on _____.
 - a) Dimensions of a waveguide
 - b) The dielectric property of the medium
 - c) Wave mode
 - d) All
- 3) Fading effect due to variation in the transmission medium is more effective at _____.

a) Low frequency	b) High frequency
c) Medium frequency	d) None
- 4) Radar principle is used in _____.

a) detection of aircraft	b) burglar alarms
c) garage door openers	d) all of the above
- 5) GaAs FET is prefer to _____.

a) lower frequency	b) higher frequency
c) both a and b	d) none of above
- 6) The speed at which axial electric field due to signal advances in a TWT is equal to _____.
 - a) speed of light
 - b) (speed of light) (helix pitch helix circumference)
 - c) (speed of light) (helix pitch) (helix circumference)
 - d) (speed of light) (helix circumference helix pitch)

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING****Advanced Communication Engineering (BTN04701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt the following (Any Two) 12**
- a) Show how TWT generates oscillations using slow wave structure.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt the following (Any Four) 16**
- a) “Conventional devices have limitations at the high microwave frequencies”. Justify the statement.
 - b) Explain the function of circulator.
 - c) Derive scattering matrix for H plane Tee junction. Discuss different cases.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt the following (Any Two) 12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt the following (Any Four) 16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance?
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (BTN04701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A satellite link uses different frequencies for receiving and transmitting in order to _____.
 - a) avoid interference from terrestrial microwave links
 - b) avoid interference between its powerful transmitted signal and weak in coming signal
 - c) minimise free-space losses
 - d) maximise antenna gain
- 2) Geosynchronous communication satellites travel around the earth in circular orbits with a forward speed of about _____ km/h.
 - a) 11200
 - b) 36000
 - c) 0
 - d) 22800
- 3) In satellite communication, highly directional antennas are used to _____.
 - a) direct the spot beam to a particular region of space on Earth
 - b) strengthen the beam to overcome the cosmic noise
 - c) make corrections in change of polarisation of the beam
 - d) select a particular channel in transmission and reception
- 4) Low-orbit satellites are not used for communications because they _____.
 - a) produce sonic booms
 - b) do not provide 24 hour/ day contact to the users on Earth
 - c) heat up and melt
 - d) none
- 5) The traffic-handling capacity of an Earth station on the uplink depends on _____.
 - a) its EIRP
 - b) satellite antenna gain
 - c) noise associated with the satellite
 - d) all of the above
- 6) The angle between incident ray & normal to the plane is _____.
 - a) Angle of reflection
 - b) Angle of incident
 - c) Angle of coefficient
 - d) None of these

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING****Advanced Communication Engineering (BTN04701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt the following (Any Two) 12**
- a) Show how TWT generates oscillations using slow wave structure.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt the following (Any Four) 16**
- a) “Conventional devices have limitations at the high microwave frequencies”. Justify the statement.
 - b) Explain the function of circulator.
 - c) Derive scattering matrix for H plane Tee junction. Discuss different cases.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt the following (Any Two) 12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt the following (Any Four) 16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance?
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (BTN04701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) Low-orbit satellites are not used for communications because they _____.
 - a) produce sonic booms
 - b) do not provide 24 hour/ day contact to the users on Earth
 - c) heat up and melt
 - d) none
- 2) The traffic-handling capacity of an Earth station on the uplink depends on _____.
 - a) its EIRP
 - b) satellite antenna gain
 - c) noise associated with the satellite
 - d) all of the above
- 3) The angle between incident ray & normal to the plane is _____.

a) Angle of reflection	b) Angle of incident
c) Angle of coefficient	d) None of these
- 4) In second generation, wavelength of multimode fiber is _____.

a) 1310 nm	b) 850 nm
c) 1420 nm	d) 1550 nm
- 5) A microwave junction is supposed to be matched at all ports if in the S matrix _____.
 - a) all the diagonal elements are zero
 - b) all the diagonal elements are equal but not zero
 - c) all the diagonal elements are complex
 - d) is Hermitian
- 6) The cut-off frequency of a waveguide depends on _____.
 - a) Dimensions of a waveguide
 - b) The dielectric property of the medium
 - c) Wave mode
 - d) All

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (BTN04701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt the following (Any Two) 12**
- a) Show how TWT generates oscillations using slow wave structure.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt the following (Any Four) 16**
- a) "Conventional devices have limitations at the high microwave frequencies". Justify the statement.
 - b) Explain the function of circulator.
 - c) Derive scattering matrix for H plane Tee junction. Discuss different cases.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt the following (Any Two) 12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt the following (Any Four) 16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance?
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (BTN04701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) The speed at which axial electric field due to signal advances in a TWT is equal to _____.
 - a) speed of light
 - b) (speed of light) (helix pitch helix circumference)
 - c) (speed of light) (helix pitch) (helix circumference)
 - d) (speed of light) (helix circumference helix pitch)
- 2) If r_v is reflection coefficient and VSWR is voltage standing wave ratio, then _____.

a) $\rho_v = \frac{VSWR - 1}{VSWR + 1}$	b) $ \rho_v = \frac{VSWR - 1}{VSWR + 1}$
c) $\rho_v = \frac{VSWR + 1}{VSWR - 1}$	d) $ \rho_v = \frac{VSWR + 1}{VSWR - 1}$
- 3) A satellite link uses different frequencies for receiving and transmitting in order to _____.
 - a) avoid interference from terrestrial microwave links
 - b) avoid interference between its powerful transmitted signal and weak in coming signal
 - c) minimise free-space losses
 - d) maximise antenna gain
- 4) Geosynchronous communication satellites travel around the earth in circular orbits with a forward speed of about _____ km/h.

a) 11200	b) 36000
c) 0	d) 22800
- 5) In satellite communication, highly directional antennas are used to _____.
 - a) direct the spot beam to a particular region of space on Earth
 - b) strengthen the beam to overcome the cosmic noise
 - c) make corrections in change of polarisation of the beam
 - d) select a particular channel in transmission and reception

- 6) Low-orbit satellites are not used for communications because they _____.
a) produce sonic booms
b) do not provide 24 hour/ day contact to the users on Earth
c) heat up and melt
d) none
- 7) The traffic-handling capacity of an Earth station on the uplink depends on _____.
a) its EIRP
b) satellite antenna gain
c) noise associated with the satellite
d) all of the above
- 8) The angle between incident ray & normal to the plane is _____.
a) Angle of reflection
b) Angle of incident
c) Angle of coefficient
d) None of these
- 9) In second generation, wavelength of multimode fiber is _____.
a) 1310 nm
b) 850 nm
c) 1420 nm
d) 1550 nm
- 10) A microwave junction is supposed to be matched at all ports if in the S matrix _____.
a) all the diagonal elements are zero
b) all the diagonal elements are equal but not zero
c) all the diagonal elements are complex
d) is Hermitian
- 11) The cut-off frequency of a waveguide depends on _____.
a) Dimensions of a waveguide
b) The dielectric property of the medium
c) Wave mode
d) All
- 12) Fading effect due to variation in the transmission medium is more effective at _____.
a) Low frequency
b) High frequency
c) Medium frequency
d) None
- 13) Radar principle is used in _____.
a) detection of aircraft
b) burglar alarms
c) garage door openers
d) all of the above
- 14) GaAs FET is prefer to _____.
a) lower frequency
b) higher frequency
c) both a and b
d) none of above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING****Advanced Communication Engineering (BTN04701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt the following (Any Two) 12**
- Show how TWT generates oscillations using slow wave structure.
 - Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt the following (Any Four) 16**
- “Conventional devices have limitations at the high microwave frequencies”. Justify the statement.
 - Explain the function of circulator.
 - Derive scattering matrix for H plane Tee junction. Discuss different cases.
 - Explain basic principle of radar system.
 - Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt the following (Any Two) 12**
- Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - Draw the block diagram of earth station and explain in detail.
 - Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt the following (Any Four) 16**
- What is meant by geostationary satellite?
 - Explain in detail orbital effects in communication system performance?
 - Explain in detail launch and launch vehicles.
 - Comparison of single mode, multimode step index and graded index optical fiber.
 - Derive numerical aperture for step index fiber.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (BTN04702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) R-C snubber is used in parallel with the thyristor to _____.
a) reduce dv/dt across it b) protect against di/dt
c) protect over current d) trigger thyristor
- 2) Thyristor is a _____.
a) DC switch b) bilateral device
c) latch proof device d) voltage controlled device
- 3) Inductor is connected in series with thyristor to _____.
a) reduce dv/dt across it b) protect against di/dt
c) protect over voltage d) trigger thyristor
- 4) PIV for single phase full bridge controlled rectifier is _____.
a) $2V_m$ b) V_m
c) $3V_m$ d) $4V_m$
- 5) In a three-phase half wave controlled rectifier, if the input frequency is 50 Hz, then output ripple frequency will be _____.
a) 150 Hz b) 300 Hz
c) 100 Hz d) 200 Hz
- 6) In Three phase full controlled bridge rectifier PIV across any thyristor is _____.
a) $\sqrt{2} V_m$ b) $\sqrt{3} V_m$
c) V_m d) $\sqrt{3} V_{LL}$
- 7) A three phase semi converter will require _____ number of SCRs and _____ number of diodes.
a) 6, 6 b) 3, 3
c) 12, 12 d) 4, 4
- 8) A Step down chopper has input voltage of 80V & duty cycle is 25% then output voltage will be _____.
a) 200 b) 320
c) 16 d) 20

- 9) Class A and Class B choppers _____.
a) Two quadrant converters b) Three quadrant converters
c) Single quadrant converters d) None
- 10) The number of thyristors required for single phase bridge type cycloconverters _____.
a) 8 b) 6
c) 4 d) 2
- 11) Cycloconverter is a combination of _____.
a) Positive and negative converter
b) Two positive converter
c) Two negative converter
d) None
- 12) In speed control of AC motor generally actual speed will be compared with _____.
a) reference speed b) rated speed
c) rated current d) load resistance
- 13) The harmonic present in a Three Phase bridge wave inverter are _____.
a) All even harmonic b) All odd harmonic
c) Even & odd harmonic d) All odd harmonic expects triples
- 14) Square wave PWM technique allows _____.
a) Voltage & harmonics control b) only harmonics control
c) only voltage control d) only frequency control

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (BTN04702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Answer the following (Any four). 16

- a) With suitable circuit diagram elaborate how to protect SCR from high di/dt and high dv/dt .
- b) Explain working of electronic crowbar circuit with suitable circuit diagram.
- c) Derive an expression of average dc output voltage for single phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 60^\circ$.
- d) A single phase fully controlled rectifier is operated from 120V, 50Hz supply. Determine average load for delay angles of 0° and 90° , assuming continuous load current. Also calculate required peak voltage of each thyristor and output ripple frequency.
- e) Derive an exp for Average voltage for three phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 90^\circ$.

Q.3 Answer the Following (Any two). 12

- a) What is commutation? How commutation takes place in class A and class C commutation technique. Sketch associated waveforms.
- b) Justify motor can be controlled with help of four quadrant converter. Derive an expression for circulating current of dual converter.
- c) Design microcontroller based firing scheme for three phase fully controlled rectifiers.

Section – II

Q.4 Answer the following (Any four).**16**

- a) Explain working of step down chopper and derive an expression for output voltage, duty cycle and effective input resistance.
- b) What is cycloconverter? How AC to AC conversion takes place in single phase bridge type 5:1 cycloconverter with resistive load. Sketch associated waveforms.
- c) Prove that $I_n = \left(\frac{Fr}{nFch}\right)^2$ Justify for chopper circuit "Resonance frequency is always less than chopping frequency".
- d) How to vary output voltage of inverter using single pulse modulation technique. How it eliminates n^{th} harmonic component from output voltage.
- e) Design single phase full bridge inverter to provide 100 V, 1KHz AC output voltage across 20Ω resistive load. Calculate.
 - i) DC value of input voltage
 - ii) RMS voltage of fundamental component
 - iii) First five harmonics of output voltage

Q.5 Answer the Following (Any two).**12**

- a) With an appropriate power diagram discuss working principle of three phase bridge inverter using 120° conduction mode, feeding star connected purely resistive load. Draw associated line and phase voltage using mathematical analysis.
- b) Draw a block diagram of microcontroller based speed control of four quadrant AC drive and explain its working.
- c) Elaborate the process of commutation of main thyristor in Morgans chopper with associated voltage and current waveform.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (BTN04702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Answer the following (Any four). 16

- a) With suitable circuit diagram elaborate how to protect SCR from high di/dt and high dv/dt .
- b) Explain working of electronic crowbar circuit with suitable circuit diagram.
- c) Derive an expression of average dc output voltage for single phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 60^\circ$.
- d) A single phase fully controlled rectifier is operated from 120V, 50Hz supply. Determine average load for delay angles of 0° and 90° , assuming continuous load current. Also calculate required peak voltage of each thyristor and output ripple frequency.
- e) Derive an exp for Average voltage for three phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 90^\circ$.

Q.3 Answer the Following (Any two). 12

- a) What is commutation? How commutation takes place in class A and class C commutation technique. Sketch associated waveforms.
- b) Justify motor can be controlled with help of four quadrant converter. Derive an expression for circulating current of dual converter.
- c) Design microcontroller based firing scheme for three phase fully controlled rectifiers.

Section – II

Q.4 Answer the following (Any four).**16**

- a) Explain working of step down chopper and derive an expression for output voltage, duty cycle and effective input resistance.
- b) What is cycloconverter? How AC to AC conversion takes place in single phase bridge type 5:1 cycloconverter with resistive load. Sketch associated waveforms.
- c) Prove that $I_n = \left(\frac{Fr}{nFch}\right)^2$ Justify for chopper circuit "Resonance frequency is always less than chopping frequency".
- d) How to vary output voltage of inverter using single pulse modulation technique. How it eliminates n^{th} harmonic component from output voltage.
- e) Design single phase full bridge inverter to provide 100 V, 1KHz AC output voltage across 20Ω resistive load. Calculate.
 - i) DC value of input voltage
 - ii) RMS voltage of fundamental component
 - iii) First five harmonics of output voltage

Q.5 Answer the Following (Any two).**12**

- a) With an appropriate power diagram discuss working principle of three phase bridge inverter using 120° conduction mode, feeding star connected purely resistive load. Draw associated line and phase voltage using mathematical analysis.
- b) Draw a block diagram of microcontroller based speed control of four quadrant AC drive and explain its working.
- c) Elaborate the process of commutation of main thyristor in Morgans chopper with associated voltage and current waveform.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (BTN04702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Cycloconverter is a combination of _____.
 a) Positive and negative converter
 b) Two positive converter
 c) Two negative converter
 d) None
- 2) In speed control of AC motor generally actual speed will be compared with _____.
 a) reference speed
 b) rated speed
 c) rated current
 d) load resistance
- 3) The harmonic present in a Three Phase bridge wave inverter are _____.
 a) All even harmonic
 b) All odd harmonic
 c) Even & odd harmonic
 d) All odd harmonic expects triples
- 4) Square wave PWM technique allows _____.
 a) Voltage & harmonics control
 b) only harmonics control
 c) only voltage control
 d) only frequency control
- 5) R-C snubber is used in parallel with the thyristor to _____.
 a) reduce dv/dt across it
 b) protect against di/dt
 c) protect over current
 d) trigger thyristor
- 6) Thyristor is a _____.
 a) DC switch
 b) bilateral device
 c) latch proof device
 d) voltage controlled device
- 7) Inductor is connected in series with thyristor to _____.
 a) reduce dv/dt across it
 b) protect against di/dt
 c) protect over voltage
 d) trigger thyristor
- 8) PIV for single phase full bridge controlled rectifier is _____.
 a) $2V_m$
 b) V_m
 c) $3V_m$
 d) $4V_m$

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (BTN04702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Answer the following (Any four). 16

- a) With suitable circuit diagram elaborate how to protect SCR from high di/dt and high dv/dt .
- b) Explain working of electronic crowbar circuit with suitable circuit diagram.
- c) Derive an expression of average dc output voltage for single phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 60^\circ$.
- d) A single phase fully controlled rectifier is operated from 120V, 50Hz supply. Determine average load for delay angles of 0° and 90° , assuming continuous load current. Also calculate required peak voltage of each thyristor and output ripple frequency.
- e) Derive an exp for Average voltage for three phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 90^\circ$.

Q.3 Answer the Following (Any two). 12

- a) What is commutation? How commutation takes place in class A and class C commutation technique. Sketch associated waveforms.
- b) Justify motor can be controlled with help of four quadrant converter. Derive an expression for circulating current of dual converter.
- c) Design microcontroller based firing scheme for three phase fully controlled rectifiers.

Section – II

Q.4 Answer the following (Any four).**16**

- a) Explain working of step down chopper and derive an expression for output voltage, duty cycle and effective input resistance.
- b) What is cycloconverter? How AC to AC conversion takes place in single phase bridge type 5:1 cycloconverter with resistive load. Sketch associated waveforms.
- c) Prove that $I_n = \left(\frac{Fr}{nFch}\right)^2$ Justify for chopper circuit "Resonance frequency is always less than chopping frequency".
- d) How to vary output voltage of inverter using single pulse modulation technique. How it eliminates n^{th} harmonic component from output voltage.
- e) Design single phase full bridge inverter to provide 100 V, 1KHz AC output voltage across 20Ω resistive load. Calculate.
 - i) DC value of input voltage
 - ii) RMS voltage of fundamental component
 - iii) First five harmonics of output voltage

Q.5 Answer the Following (Any two).**12**

- a) With an appropriate power diagram discuss working principle of three phase bridge inverter using 120° conduction mode, feeding star connected purely resistive load. Draw associated line and phase voltage using mathematical analysis.
- b) Draw a block diagram of microcontroller based speed control of four quadrant AC drive and explain its working.
- c) Elaborate the process of commutation of main thyristor in Morgans chopper with associated voltage and current waveform.

- 8) The harmonic present in a Three Phase bridge wave inverter are _____.
a) All even harmonic b) All odd harmonic
c) Even & odd harmonic d) All odd harmonic expects triples
- 9) Square wave PWM technique allows _____.
a) Voltage & harmonics control b) only harmonics control
c) only voltage control d) only frequency control
- 10) R-C snubber is used in parallel with the thyristor to _____.
a) reduce dv/dt across it b) protect against di/dt
c) protect over current d) trigger thyristor
- 11) Thyristor is a _____.
a) DC switch b) bilateral device
c) latch proof device d) voltage controlled device
- 12) Inductor is connected in series with thyristor to _____.
a) reduce dv/dt across it b) protect against di/dt
c) protect over voltage d) trigger thyristor
- 13) PIV for single phase full bridge controlled rectifier is _____.
a) $2V_m$ b) V_m
c) $3V_m$ d) $4V_m$
- 14) In a three-phase half wave controlled rectifier, if the input frequency is 50 Hz, then output ripple frequency will be _____.
a) 150 Hz b) 300 Hz
c) 100 Hz d) 200 Hz

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (BTN04702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Answer the following (Any four). 16

- a) With suitable circuit diagram elaborate how to protect SCR from high di/dt and high dv/dt .
- b) Explain working of electronic crowbar circuit with suitable circuit diagram.
- c) Derive an expression of average dc output voltage for single phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 60^\circ$.
- d) A single phase fully controlled rectifier is operated from 120V, 50Hz supply. Determine average load for delay angles of 0° and 90° , assuming continuous load current. Also calculate required peak voltage of each thyristor and output ripple frequency.
- e) Derive an exp for Average voltage for three phase semiconverter with resistive load. Sketch associated waveforms for $\alpha = 90^\circ$.

Q.3 Answer the Following (Any two). 12

- a) What is commutation? How commutation takes place in class A and class C commutation technique. Sketch associated waveforms.
- b) Justify motor can be controlled with help of four quadrant converter. Derive an expression for circulating current of dual converter.
- c) Design microcontroller based firing scheme for three phase fully controlled rectifiers.

Section – II

Q.4 Answer the following (Any four).**16**

- a) Explain working of step down chopper and derive an expression for output voltage, duty cycle and effective input resistance.
- b) What is cycloconverter? How AC to AC conversion takes place in single phase bridge type 5:1 cycloconverter with resistive load. Sketch associated waveforms.
- c) Prove that $I_n = \left(\frac{Fr}{nFch}\right)^2$ Justify for chopper circuit "Resonance frequency is always less than chopping frequency".
- d) How to vary output voltage of inverter using single pulse modulation technique. How it eliminates n^{th} harmonic component from output voltage.
- e) Design single phase full bridge inverter to provide 100 V, 1KHz AC output voltage across 20Ω resistive load. Calculate.
 - i) DC value of input voltage
 - ii) RMS voltage of fundamental component
 - iii) First five harmonics of output voltage

Q.5 Answer the Following (Any two).**12**

- a) With an appropriate power diagram discuss working principle of three phase bridge inverter using 120° conduction mode, feeding star connected purely resistive load. Draw associated line and phase voltage using mathematical analysis.
- b) Draw a block diagram of microcontroller based speed control of four quadrant AC drive and explain its working.
- c) Elaborate the process of commutation of main thyristor in Morgans chopper with associated voltage and current waveform.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Small scale fading describes the _____ fluctuations of the amplitude, phases of signal.
 - a) Rapid
 - b) Slow
 - c) Instantaneous
 - d) Different
- 2) _____ range covers maximum geographical range of all.
 - a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 3) Training Sequence and Equalization are solutions for _____ interference.
 - a) inter symbol
 - b) co channel
 - c) adjacent channel
 - d) Noise
- 4) Why neighboring stations are assigned different group of channels in cellular system?
 - a) To minimize interference
 - b) To minimize area
 - c) To maximize throughput
 - d) To maximize capacity of each cell
- 5) What is a cell in cellular system?
 - a) A small geographical area
 - b) A group of subscribers
 - c) A group of cells
 - d) A large group of mobile systems
- 6) For a cellular system, if there are N cells and each cell is allocated k channel. What is the total number of available radio channels, S ?
 - a) $S = k * N$
 - b) $S = k / N$
 - c) $S = N / k$
 - d) $S = k^N$
- 7) _____ are used to resolve and combine multipath components.
 - a) Equalizer
 - b) Registers
 - c) RAKE receiver
 - d) Frequency divider

- 8) Which of below is true for a Walsh Code?
a) They are orthogonal
b) They are used in CDMA
c) Their Inner Product with self is maximum
d) All of above
- 9) In IEEE 802.11 DSSS spreading is achieved using _____.
a) Walsh Code
b) Training sequence
c) Barker Sequence
d) None of above
- 10) Agent discovery & solicitation terms are associated with _____ layer.
a) mobile network
b) mobile IP
c) Transport
d) all of above
- 11) In a IEEE 802.11 MAC packet structure, first two bytes are _____.
a) frame control
b) duration ID
c) preamble
d) sequence number
- 12) A Bluetooth network is called _____.
a) Wireless Network
b) WAN
c) Piconet
d) LAN
- 13) A wireless network interface controller can work in _____.
a) infrastructure mode
b) ad-hoc mode
c) both infrastructure mode and ad-hoc mode
d) none of the mentioned
- 14) What is the access point (AP) in wireless LAN?
a) device that allows wireless devices to connect to a wired network
b) wireless devices itself
c) both device that allows wireless devices to connect to a wired network and wireless devices itself
d) none of the mentioned

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) How signal spreading is achieved using FHSS?
- b) Explain what an "Operating System" is. Give at least 3 examples of popular modern operating systems and the devices where they're found.
- c) CSMA/CD MAC is used in wired network but it fails in wireless network. Justify the statement.
- d) With suitable diagram explain GSM time frame of 4.615 ms and a time slot of 577 μ S
- e) With suitable example discuss effect of Δ on handoff.

Q.3 Solve any two **12**

- a) Justify the statement "cell splitting, cell sectoring and Microcell zone technique can increase user capacity".
- b) With suitable diagram explain a typical sequence of events that take place for a mobile originated call.
- c) Base Station uses the reverse link channels in IS95, describe that channels in brief.

Section – II

Q.4 Solve any four **16**

- a) What are the requirements for a Mobile IP?
- b) With suitable example explain master, slave, parked & standby modes.
- c) Define mobile computing. Describe mobile computing function.
- d) Describe ad-hoc architecture for WLAN.
- e) What is agent solicitation? Why it is required?

Q.5 Solve any two **12**

- a) Specify the radio transmission with DSSS PHY frame structure for IEEE 802.11
- b) Explain with example - Data transfer on SCO and ACL links for Bluetooth.
- c) With suitable diagram explain how a packet is sent from a fixed node to a mobile node which is presently in foreign network.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of below is true for a Walsh Code?
 - a) They are orthogonal
 - b) They are used in CDMA
 - c) Their Inner Product with self is maximum
 - d) All of above
- 2) In IEEE 802.11 DSSS spreading is achieved using _____.
 - a) Walsh Code
 - b) Training sequence
 - c) Barker Sequence
 - d) None of above
- 3) Agent discovery & solicitation terms are associated with _____ layer.
 - a) mobile network
 - b) mobile IP
 - c) Transport
 - d) all of above
- 4) In a IEEE 802.11 MAC packet structure, first two bytes are _____.
 - a) frame control
 - b) duration ID
 - c) preamble
 - d) sequence number
- 5) A Bluetooth network is called _____.
 - a) Wireless Network
 - b) WAN
 - c) Piconet
 - d) LAN
- 6) A wireless network interface controller can work in _____.
 - a) infrastructure mode
 - b) ad-hoc mode
 - c) both infrastructure mode and ad-hoc mode
 - d) none of the mentioned
- 7) What is the access point (AP) in wireless LAN?
 - a) device that allows wireless devices to connect to a wired network
 - b) wireless devices itself
 - c) both device that allows wireless devices to connect to a wired network and wireless devices itself
 - d) none of the mentioned

- 8) Small scale fading describes the _____ fluctuations of the amplitude, phases of signal.
- a) Rapid
 - b) Slow
 - c) Instantaneous
 - d) Different
- 9) _____ range covers maximum geographical range of all.
- a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 10) Training Sequence and Equalization are solutions for _____ interference.
- a) inter symbol
 - b) co channel
 - c) adjacent channel
 - d) Noise
- 11) Why neighboring stations are assigned different group of channels in cellular system?
- a) To minimize interference
 - b) To minimize area
 - c) To maximize throughput
 - d) To maximize capacity of each cell
- 12) What is a cell in cellular system?
- a) A small geographical area
 - b) A group of subscribers
 - c) A group of cells
 - d) A large group of mobile systems
- 13) For a cellular system, if there are N cells and each cell is allocated k channel. What is the total number of available radio channels, S ?
- a) $S = k*N$
 - b) $S = k/N$
 - c) $S = N/k$
 - d) $S = k^N$
- 14) _____ are used to resolve and combine multipath components.
- a) Equalizer
 - b) Registers
 - c) RAKE receiver
 - d) Frequency divider

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) How signal spreading is achieved using FHSS?
- b) Explain what an "Operating System" is. Give at least 3 examples of popular modern operating systems and the devices where they're found.
- c) CSMA/CD MAC is used in wired network but it fails in wireless network. Justify the statement.
- d) With suitable diagram explain GSM time frame of 4.615 ms and a time slot of 577 μ S
- e) With suitable example discuss effect of Δ on handoff.

Q.3 Solve any two **12**

- a) Justify the statement "cell splitting, cell sectoring and Microcell zone technique can increase user capacity".
- b) With suitable diagram explain a typical sequence of events that take place for a mobile originated call.
- c) Base Station uses the reverse link channels in IS95, describe that channels in brief.

Section – II

Q.4 Solve any four **16**

- a) What are the requirements for a Mobile IP?
- b) With suitable example explain master, slave, parked & standby modes.
- c) Define mobile computing. Describe mobile computing function.
- d) Describe ad-hoc architecture for WLAN.
- e) What is agent solicitation? Why it is required?

Q.5 Solve any two **12**

- a) Specify the radio transmission with DSSS PHY frame structure for IEEE 802.11
- b) Explain with example - Data transfer on SCO and ACL links for Bluetooth.
- c) With suitable diagram explain how a packet is sent from a fixed node to a mobile node which is presently in foreign network.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In a IEEE 802.11 MAC packet structure, first two bytes are _____.
 - a) frame control
 - b) duration ID
 - c) preamble
 - d) sequence number
- 2) A Bluetooth network is called _____.
 - a) Wireless Network
 - b) WAN
 - c) Piconet
 - d) LAN
- 3) A wireless network interface controller can work in _____.
 - a) infrastructure mode
 - b) ad-hoc mode
 - c) both infrastructure mode and ad-hoc mode
 - d) none of the mentioned
- 4) What is the access point (AP) in wireless LAN?
 - a) device that allows wireless devices to connect to a wired network
 - b) wireless devices itself
 - c) both device that allows wireless devices to connect to a wired network and wireless devices itself
 - d) none of the mentioned
- 5) Small scale fading describes the _____ fluctuations of the amplitude, phases of signal.
 - a) Rapid
 - b) Slow
 - c) Instantaneous
 - d) Different
- 6) _____ range covers maximum geographical range of all.
 - a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 7) Training Sequence and Equalization are solutions for _____ interference.
 - a) inter symbol
 - b) co channel
 - c) adjacent channel
 - d) Noise

- 8) Why neighboring stations are assigned different group of channels in cellular system?
- To minimize interference
 - To minimize area
 - To maximize throughput
 - To maximize capacity of each cell
- 9) What is a cell in cellular system?
- A small geographical area
 - A group of subscribers
 - A group of cells
 - A large group of mobile systems
- 10) For a cellular system, if there are N cells and each cell is allocated k channel. What is the total number of available radio channels, S ?
- $S = k * N$
 - $S = k / N$
 - $S = N / k$
 - $S = k^N$
- 11) _____ are used to resolve and combine multipath components.
- Equalizer
 - Registers
 - RAKE receiver
 - Frequency divider
- 12) Which of below is true for a Walsh Code?
- They are orthogonal
 - They are used in CDMA
 - Their Inner Product with self is maximum
 - All of above
- 13) In IEEE 802.11 DSSS spreading is achieved using _____.
- Walsh Code
 - Training sequence
 - Barker Sequence
 - None of above
- 14) Agent discovery & solicitation terms are associated with _____ layer.
- mobile network
 - mobile IP
 - Transport
 - all of above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) How signal spreading is achieved using FHSS?
- b) Explain what an "Operating System" is. Give at least 3 examples of popular modern operating systems and the devices where they're found.
- c) CSMA/CD MAC is used in wired network but it fails in wireless network. Justify the statement.
- d) With suitable diagram explain GSM time frame of 4.615 ms and a time slot of 577 μ S
- e) With suitable example discuss effect of Δ on handoff.

Q.3 Solve any two **12**

- a) Justify the statement "cell splitting, cell sectoring and Microcell zone technique can increase user capacity".
- b) With suitable diagram explain a typical sequence of events that take place for a mobile originated call.
- c) Base Station uses the reverse link channels in IS95, describe that channels in brief.

Section – II

Q.4 Solve any four **16**

- a) What are the requirements for a Mobile IP?
- b) With suitable example explain master, slave, parked & standby modes.
- c) Define mobile computing. Describe mobile computing function.
- d) Describe ad-hoc architecture for WLAN.
- e) What is agent solicitation? Why it is required?

Q.5 Solve any two **12**

- a) Specify the radio transmission with DSSS PHY frame structure for IEEE 802.11
- b) Explain with example - Data transfer on SCO and ACL links for Bluetooth.
- c) With suitable diagram explain how a packet is sent from a fixed node to a mobile node which is presently in foreign network.

Seat
No.

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) For a cellular system, if there are N cells and each cell is allocated k channel. What is the total number of available radio channels, S ?
 - a) $S = k * N$
 - b) $S = k / N$
 - c) $S = N / k$
 - d) $S = k^N$
- 2) _____ are used to resolve and combine multipath components.
 - a) Equalizer
 - b) Registers
 - c) RAKE receiver
 - d) Frequency divider
- 3) Which of below is true for a Walsh Code?
 - a) They are orthogonal
 - b) They are used in CDMA
 - c) Their Inner Product with self is maximum
 - d) All of above
- 4) In IEEE 802.11 DSSS spreading is achieved using _____.
 - a) Walsh Code
 - b) Training sequence
 - c) Barker Sequence
 - d) None of above
- 5) Agent discovery & solicitation terms are associated with _____ layer.
 - a) mobile network
 - b) mobile IP
 - c) Transport
 - d) all of above
- 6) In a IEEE 802.11 MAC packet structure, first two bytes are _____.
 - a) frame control
 - b) duration ID
 - c) preamble
 - d) sequence number
- 7) A Bluetooth network is called _____.
 - a) Wireless Network
 - b) WAN
 - c) Piconet
 - d) LAN
- 8) A wireless network interface controller can work in _____.
 - a) infrastructure mode
 - b) ad-hoc mode
 - c) both infrastructure mode and ad-hoc mode
 - d) none of the mentioned

- 9) What is the access point (AP) in wireless LAN?
- a) device that allows wireless devices to connect to a wired network
 - b) wireless devices itself
 - c) both device that allows wireless devices to connect to a wired network and wireless devices itself
 - d) none of the mentioned
- 10) Small scale fading describes the _____ fluctuations of the amplitude, phases of signal.
- a) Rapid
 - b) Slow
 - c) Instantaneous
 - d) Different
- 11) _____ range covers maximum geographical range of all.
- a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 12) Training Sequence and Equalization are solutions for _____ interference.
- a) inter symbol
 - b) co channel
 - c) adjacent channel
 - d) Noise
- 13) Why neighboring stations are assigned different group of channels in cellular system?
- a) To minimize interference
 - b) To minimize area
 - c) To maximize throughput
 - d) To maximize capacity of each cell
- 14) What is a cell in cellular system?
- a) A small geographical area
 - b) A group of subscribers
 - c) A group of cells
 - d) A large group of mobile systems

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (BTN04703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) How signal spreading is achieved using FHSS?
- b) Explain what an "Operating System" is. Give at least 3 examples of popular modern operating systems and the devices where they're found.
- c) CSMA/CD MAC is used in wired network but it fails in wireless network. Justify the statement.
- d) With suitable diagram explain GSM time frame of 4.615 ms and a time slot of 577 μ S
- e) With suitable example discuss effect of Δ on handoff.

Q.3 Solve any two **12**

- a) Justify the statement "cell splitting, cell sectoring and Microcell zone technique can increase user capacity".
- b) With suitable diagram explain a typical sequence of events that take place for a mobile originated call.
- c) Base Station uses the reverse link channels in IS95, describe that channels in brief.

Section – II

Q.4 Solve any four **16**

- a) What are the requirements for a Mobile IP?
- b) With suitable example explain master, slave, parked & standby modes.
- c) Define mobile computing. Describe mobile computing function.
- d) Describe ad-hoc architecture for WLAN.
- e) What is agent solicitation? Why it is required?

Q.5 Solve any two **12**

- a) Specify the radio transmission with DSSS PHY frame structure for IEEE 802.11
- b) Explain with example - Data transfer on SCO and ACL links for Bluetooth.
- c) With suitable diagram explain how a packet is sent from a fixed node to a mobile node which is presently in foreign network.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (Starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The majority carriers of p-type semiconductor are: _____.
 - a) Holes
 - b) Negative ions
 - c) Electrons
 - d) Positive ions
- 2) The low voltage on the gate of p-MOSFET forms: _____.
 - a) Channel of negative carriers
 - b) Channel is not formed
 - c) Channel is clipped
 - d) Channel of positive carriers
- 3) The n-MOSFET is working as accumulation mode when: _____.
 - a) Gate is applied with positive voltage
 - b) Gate is grounded
 - c) Gate is applied with negative voltage
 - d) Gate is connected to source
- 4) If p-transistor is conducting and has small voltage between source and drain, then it is said to work in _____.
 - a) linear region
 - b) saturation region
 - c) non saturation resistive region
 - d) cut-off region
- 5) If both the transistors are in saturation, then they act as _____.
 - a) current source
 - b) voltage source
 - c) divider
 - d) buffer
- 6) In CMOS inverter, transistor is a switch having _____.
 - a) infinite on resistance
 - b) finite on resistance
 - c) buffer
 - d) infinite off resistance
- 7) CMOS inverter has _____ output impedance.
 - a) low
 - b) high
 - c) very high
 - d) none of the mentioned
- 8) In CMOS logic circuit the n-MOS transistor acts as: _____.
 - a) Load
 - b) Pull up network
 - c) Pull down network
 - d) Not used in CMOS circuits

- 9) Why the PUN is constructed using PMOS devices?
- a) PMOS transistors produce "strong zeros"
 - b) PMOS transistors produce "strong ones"
 - c) PMOS transistors produce "high impedance"
 - d) None of the mentioned
- 10) In the positive latch, the D input is selected when clock is _____, and the output is held (using feedback) when clock is _____.
- a) Low, high
 - b) High, high
 - c) Low, low
 - d) High, low
- 11) A stored value remains valid as long as the supply voltage is applied to the circuit, hence the name _____.
- a) Static
 - b) Dynamic
 - c) flip-flop
 - d) Latch
- 12) What is the standard form of C^2MOS ?
- a) Common CMOS Register
 - b) CMOS Clocked Register
 - c) Clocked CMOS Register
 - d) None of these
- 13) In Differential Cascade Voltage Switch Logic (or DCVSL), the pull-down networks PDN1 and PDN2 use NMOS devices and are _____.
- a) mutually not exclusive
 - b) PDN1 and PDN2 turn ON at the same time
 - c) mutually exclusive Both
 - d) Both PDN1 and PDN2 turn OFF at the same time
- 14) When the pass transistor pulls a node high, the output only charges up to _____.
- a) $V_{DD} - V_{Tn}$.
 - b) $V_{DD} + V_{Tn}$.
 - c) $V_{DD} - V_{Tp}$.
 - d) $V_{DD} + V_{Tp}$.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four questions. 16

- Draw the MOS Diffusion Capacitance Model and Explain the effective capacitance.
- Explain Switching Characteristics of CMOS Inverter in detail.
- Explain Static and dynamic power Dissipation. Derive an expression for total power dissipation.
- Implement Ratioed Logic 2 input Nand Gate and justify the implementation.
- How Dynamic CMOS Logic is used in CMOS Design explain using example?

Q.3 Solve any two questions. 12

- Design and comment on number of transistors and power dissipation of Static CMOS 2 input Nor Gate and Ratioed Logic 2 input Nor Gate.
- Discuss the any two approaches to be used to reduce delays in large fan-in circuits.
- Synthesis $F = D + A \cdot (B + C)$ using complementary CMOS logic and justify it.

Section – II

Q.4 Solve any four questions. 16

- What is transmission gate? How it is used to implement Latch.
- What is bistability Principle? How it is used to design Logic Devices explain using example?
- What is clock skew and clock jitter? What are the reasons of clock skew and jitter?
- Explain timing classification in interconnect design.
- Explain ALU in detail. How it is implemented?

Q.5 Solve any two questions. 12

- Implement Master-Slave Edge-Triggered Register using transmission gates. Comment on transmission gates ON and OFF and output of the logic.
- Explain briefly Plesiochronous interconnect and Asynchronous interconnect.
- What is multiplexer based latch? Explain the use of multiplexer based latch to implement D Latch.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (Starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In CMOS logic circuit the n-MOS transistor acts as: _____.
 a) Load
 b) Pull up network
 c) Pull down network
 d) Not used in CMOS circuits
- 2) Why the PUN is constructed using PMOS devices?
 a) PMOS transistors produce "strong zeros"
 b) PMOS transistors produce "strong ones"
 c) PMOS transistors produce "high impedance"
 d) None of the mentioned
- 3) In the positive latch, the D input is selected when clock is _____, and the output is held (using feedback) when clock is _____.
 a) Low, high
 b) High, high
 c) Low, low
 d) High, low
- 4) A stored value remains valid as long as the supply voltage is applied to the circuit, hence the name _____.
 a) Static
 b) Dynamic
 c) flip-flop
 d) Latch
- 5) What is the standard form of C^2MOS ?
 a) Common CMOS Register
 b) CMOS Clocked Register
 c) Clocked CMOS Register
 d) None of these
- 6) In Differential Cascade Voltage Switch Logic (or DCVSL), the pull-down networks PDN1 and PDN2 use NMOS devices and are _____.
 a) mutually not exclusive
 b) Both PDN1 and PDN2 turn ON at the same time
 c) mutually exclusive
 d) Both PDN1 and PDN2 turn OFF at the same time
- 7) When the pass transistor pulls a node high, the output only charges up to _____.
 a) $V_{DD} - V_{Tn}$
 b) $V_{DD} + V_{Tn}$
 c) $V_{DD} - V_{Tp}$
 d) $V_{DD} + V_{Tp}$

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Solve any four questions. **16**

- a) Draw the MOS Diffusion Capacitance Model and Explain the effective capacitance.
- b) Explain Switching Characteristics of CMOS Inverter in detail.
- c) Explain Static and dynamic power Dissipation. Derive an expression for total power dissipation.
- d) Implement Ratioed Logic 2 input Nand Gate and justify the implementation.
- e) How Dynamic CMOS Logic is used in CMOS Design explain using example?

Q.3 Solve any two questions. **12**

- a) Design and comment on number of transistors and power dissipation of Static CMOS 2 input Nor Gate and Ratioed Logic 2 input Nor Gate.
- b) Discuss the any two approaches to be used to reduce delays in large fan-in circuits.
- c) Synthesis $F = D + A \cdot (B + C)$ using complementary CMOS logic and justify it.

Section – II

Q.4 Solve any four questions. **16**

- a) What is transmission gate? How it is used to implement Latch.
- b) What is bistability Principle? How it is used to design Logic Devices explain using example?
- c) What is clock skew and clock jitter? What are the reasons of clock skew and jitter?
- d) Explain timing classification in interconnect design.
- e) Explain ALU in detail. How it is implemented?

Q.5 Solve any two questions. **12**

- a) Implement Master-Slave Edge-Triggered Register using transmission gates. Comment on transmission gates ON and OFF and output of the logic.
- b) Explain briefly Plesiochronous interconnect and Asynchronous interconnect.
- c) What is multiplexer based latch? Explain the use of multiplexer based latch to implement D Latch.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four questions. 16**
- a) Draw the MOS Diffusion Capacitance Model and Explain the effective capacitance.
 - b) Explain Switching Characteristics of CMOS Inverter in detail.
 - c) Explain Static and dynamic power Dissipation. Derive an expression for total power dissipation.
 - d) Implement Ratioed Logic 2 input Nand Gate and justify the implementation.
 - e) How Dynamic CMOS Logic is used in CMOS Design explain using example?
- Q.3 Solve any two questions. 12**
- a) Design and comment on number of transistors and power dissipation of Static CMOS 2 input Nor Gate and Ratioed Logic 2 input Nor Gate.
 - b) Discuss the any two approaches to be used to reduce delays in large fan-in circuits.
 - c) Synthesis $F = D + A \cdot (B + C)$ using complementary CMOS logic and justify it.

Section – II

- Q.4 Solve any four questions. 16**
- a) What is transmission gate? How it is used to implement Latch.
 - b) What is bistability Principle? How it is used to design Logic Devices explain using example?
 - c) What is clock skew and clock jitter? What are the reasons of clock skew and jitter?
 - d) Explain timing classification in interconnect design.
 - e) Explain ALU in detail. How it is implemented?
- Q.5 Solve any two questions. 12**
- a) Implement Master-Slave Edge-Triggered Register using transmission gates. Comment on transmission gates ON and OFF and output of the logic.
 - b) Explain briefly Plesiochronous interconnect and Asynchronous interconnect.
 - c) What is multiplexer based latch? Explain the use of multiplexer based latch to implement D Latch.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (Starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In CMOS inverter, transistor is a switch having _____.
 a) infinite on resistance b) finite on resistance
 c) buffer d) infinite off resistance
- 2) CMOS inverter has _____ output impedance.
 a) low b) high
 c) very high d) none of the mentioned
- 3) In CMOS logic circuit the n-MOS transistor acts as: _____.
 a) Load b) Pull up network
 c) Pull down network d) Not used in CMOS circuits
- 4) Why the PUN is constructed using PMOS devices?
 a) PMOS transistors produce "strong zeros"
 b) PMOS transistors produce "strong ones"
 c) PMOS transistors produce "high impedance"
 d) None of the mentioned
- 5) In the positive latch, the D input is selected when clock is _____, and the output is held (using feedback) when clock is _____.
 a) Low, high b) High, high
 c) Low, low d) High, low
- 6) A stored value remains valid as long as the supply voltage is applied to the circuit, hence the name _____.
 a) Static b) Dynamic
 c) flip-flop d) Latch
- 7) What is the standard form of C^2MOS ?
 a) Common CMOS Register b) CMOS Clocked Register
 c) Clocked CMOS Register d) None of these

- 8) In Differential Cascade Voltage Switch Logic (or DCVSL), the pull-down networks PDN1 and PDN2 use NMOS devices and are _____.
a) mutually not exclusive
b) Both PDN1 and PDN2 turn ON at the same time
c) mutually exclusive
d) Both PDN1 and PDN2 turn OFF at the same time
- 9) When the pass transistor pulls a node high, the output only charges up to _____.
a) $VDD - VT_n$.
b) $VDD + VT_n$.
c) $VDD - VT_p$.
d) $VDD + VT_p$
- 10) The majority carriers of p-type semiconductor are: _____.
a) Holes
b) Negative ions
c) Electrons
d) Positive ions
- 11) The low voltage on the gate of p-MOSFET forms: _____.
a) Channel of negative carriers
b) Channel is not formed
c) Channel is clipped
d) Channel of positive carriers
- 12) The n-MOSFET is working as accumulation mode when: _____.
a) Gate is applied with positive voltage
b) Gate is grounded
c) Gate is applied with negative voltage
d) Gate is connected to source
- 13) If p-transistor is conducting and has small voltage between source and drain, then it is said to work in _____.
a) linear region
b) saturation region
c) non saturation resistive region
d) cut-off region
- 14) If both the transistors are in saturation, then they act as _____.
a) current source
b) voltage source
c) divider
d) buffer

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOS VLSI Design (BTN04706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four questions. 16

- Draw the MOS Diffusion Capacitance Model and Explain the effective capacitance.
- Explain Switching Characteristics of CMOS Inverter in detail.
- Explain Static and dynamic power Dissipation. Derive an expression for total power dissipation.
- Implement Ratioed Logic 2 input Nand Gate and justify the implementation.
- How Dynamic CMOS Logic is used in CMOS Design explain using example?

Q.3 Solve any two questions. 12

- Design and comment on number of transistors and power dissipation of Static CMOS 2 input Nor Gate and Ratioed Logic 2 input Nor Gate.
- Discuss the any two approaches to be used to reduce delays in large fan-in circuits.
- Synthesis $F = D + A \cdot (B + C)$ using complementary CMOS logic and justify it.

Section – II

Q.4 Solve any four questions. 16

- What is transmission gate? How it is used to implement Latch.
- What is bistability Principle? How it is used to design Logic Devices explain using example?
- What is clock skew and clock jitter? What are the reasons of clock skew and jitter?
- Explain timing classification in interconnect design.
- Explain ALU in detail. How it is implemented?

Q.5 Solve any two questions. 12

- Implement Master-Slave Edge-Triggered Register using transmission gates. Comment on transmission gates ON and OFF and output of the logic.
- Explain briefly Plesiochronous interconnect and Asynchronous interconnect.
- What is multiplexer based latch? Explain the use of multiplexer based latch to implement D Latch.

Seat No.	
-------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is primary objective of the software development process?
 - a) Generating user documentation
 - b) Meeting customer requirements
 - c) Reducing development costs
 - d) Enhancing project timelines
- 2) What is the primary goal of the Time Boxing model?
 - a) Minimizing development costs
 - b) Maximizing customer involvement
 - c) Controlling project duration
 - d) Improving code quality
- 3) Why is involving end-users in the requirement gathering process important?
 - a) To reduce project costs
 - b) To avoid documenting requirements
 - c) To complete the requirement process quickly
 - d) To get insights into the system's intended use and needs
- 4) What does a use case diagram represent in software engineering?
 - a) The flow of data in the system
 - b) The functionalities and interactions of the system with its users
 - c) The system's database structure
 - d) The system's performance metrics
- 5) Which design principle encourages extending the functionality of a software module without modifying its source code?

a) Open Closed Principle	b) Coupling
c) Cohesion	d) Functional Design
- 6) Which design level focuses on refining the high-level design and making it more detailed and specific?

a) Conceptual Design	b) High-Level Design
c) Detailed Design	d) Technical Design

- 7) In design, what is the significance of "coupling"?
- a) It refers to the strength of the relationship between software components
 - b) It refers to how well a component performs its intended function
 - c) It refers to the number of functions within a software component
 - d) It refers to the number of software components
- 8) What type of testing examines the software from the user's perspective without knowledge of its internal structure?
- a) Black-box testing
 - b) White-box testing
 - c) Functional testing
 - d) System testing
- 9) What is the primary goal of software testing?
- a) To find and fix bugs in the software
 - b) To design the software architecture
 - c) To write the initial code for the software
 - d) To create software documentation
- 10) What is the focus of "quality planning" in project management?
- a) Identifying project risks
 - b) Planning for quality throughout the project
 - c) Identifying project requirements
 - d) Planning for project staffing
- 11) In project management, what does "staffing" primarily involve?
- a) Allocating tasks to team members
 - b) Setting the project budget
 - c) Defining the project scope
 - d) Identifying potential risks
- 12) What does APM stand for in project management?
- a) Agile Project Management
 - b) Advanced Project Metrics
 - c) Automated Project Management
 - d) Associated Project Methodology
- 13) What is a fundamental aspect of Agile methodologies like Scrum?
- a) Extensive upfront planning
 - b) Fixed scope and requirements
 - c) Iterative cycles of work and continuous feedback
 - d) Linear progression of project phases
- 14) Which toolkit is often utilized to enhance project management efficiency and effectiveness?
- a) Gantt Chart
 - b) APM Toolkit
 - c) RACI Matrix
 - d) SWOT Analysis

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Solve any four. 16

- What is Software Engineering? Explain the steps involved in Software Development Life Cycle.
- How time boxing model is useful in Software Development explain with help of Example
- How Software Requirement specification (SRS) document is important in Software Development explain with help of Characteristics of SRS.
- With the help of Use case diagram explain Online commerce business model.
- Explain the role of software architecture in the development of complex software systems. Discuss the key responsibilities and goals of software architects.
- Explain the "Open Closed Principle" in software design and why it's essential for creating flexible and extensible software?

Q.3 Solve any two. 12

- The Training Institute is in process of developing new student management software from Company PQR. With the help of Use case diagram explain Module of Student enrollment in the Course.
- Explain the concept of "component and connector view" in software architecture and why it's important to visualize how different parts of the software connect.
- With the help of example and neat diagram explain how Prototype Model is used in software development.

Section – II

Q.4 Solve any four. 16

- What are the levels of Testing and illustrate its importance at every level?
- Explain the concepts of black-box testing and white-box testing.
- Differentiate Between Procedural and Quantitative Approaches of Quality Planning.
- Discuss risk management planning in software engineering projects. Explain the process of identifying, analyzing, and mitigating risks throughout the project lifecycle.
- How the "iterative project management life cycle" works and why it is beneficial for managing projects.
- Explain the role of the "APM Toolkit" in Agile Project Management and how it helps in managing projects efficiently.

Q.5 Solve any two.

- a) What are Test Cases and Test Criteria. Prepare the test cases used for testing of User Authentication Page.
- b) You are working as Software Development Team member illustrate with help of example following Terminologies used in the Agile Project Management
 - i) Sprint
 - ii) Sprint review
 - iii) Scrum Master
 - iv) Backlog
 - v) Sprint retrospective
 - vi) Product Owner
- c) With help of example explain Project management process.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What type of testing examines the software from the user's perspective without knowledge of its internal structure?
 - a) Black-box testing
 - b) White-box testing
 - c) Functional testing
 - d) System testing
- 2) What is the primary goal of software testing?
 - a) To find and fix bugs in the software
 - b) To design the software architecture
 - c) To write the initial code for the software
 - d) To create software documentation
- 3) What is the focus of "quality planning" in project management?
 - a) Identifying project risks
 - b) Planning for quality throughout the project
 - c) Identifying project requirements
 - d) Planning for project staffing
- 4) In project management, what does "staffing" primarily involve?
 - a) Allocating tasks to team members
 - b) Setting the project budget
 - c) Defining the project scope
 - d) Identifying potential risks
- 5) What does APM stand for in project management?
 - a) Agile Project Management
 - b) Advanced Project Metrics
 - c) Automated Project Management
 - d) Associated Project Methodology
- 6) What is a fundamental aspect of Agile methodologies like Scrum?
 - a) Extensive upfront planning
 - b) Fixed scope and requirements
 - c) Iterative cycles of work and continuous feedback
 - d) Linear progression of project phases

- 7) Which toolkit is often utilized to enhance project management efficiency and effectiveness?
- a) Gantt Chart
 - b) APM Toolkit
 - c) RACI Matrix
 - d) SWOT Analysis
- 8) What is primary objective of the software development process?
- a) Generating user documentation
 - b) Meeting customer requirements
 - c) Reducing development costs
 - d) Enhancing project timelines
- 9) What is the primary goal of the Time Boxing model?
- a) Minimizing development costs
 - b) Maximizing customer involvement
 - c) Controlling project duration
 - d) Improving code quality
- 10) Why is involving end-users in the requirement gathering process important?
- a) To reduce project costs
 - b) To avoid documenting requirements
 - c) To complete the requirement process quickly
 - d) To get insights into the system's intended use and needs
- 11) What does a use case diagram represent in software engineering?
- a) The flow of data in the system
 - b) The functionalities and interactions of the system with its users
 - c) The system's database structure
 - d) The system's performance metrics
- 12) Which design principle encourages extending the functionality of a software module without modifying its source code?
- a) Open Closed Principle
 - b) Coupling
 - c) Cohesion
 - d) Functional Design
- 13) Which design level focuses on refining the high-level design and making it more detailed and specific?
- a) Conceptual Design
 - b) High-Level Design
 - c) Detailed Design
 - d) Technical Design
- 14) In design, what is the significance of "coupling"?
- a) It refers to the strength of the relationship between software components
 - b) It refers to how well a component performs its intended function
 - c) It refers to the number of functions within a software component
 - d) It refers to the number of software components

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Solve any four. 16

- What is Software Engineering? Explain the steps involved in Software Development Life Cycle.
- How time boxing model is useful in Software Development explain with help of Example
- How Software Requirement specification (SRS) document is important in Software Development explain with help of Characteristics of SRS.
- With the help of Use case diagram explain Online commerce business model.
- Explain the role of software architecture in the development of complex software systems. Discuss the key responsibilities and goals of software architects.
- Explain the "Open Closed Principle" in software design and why it's essential for creating flexible and extensible software?

Q.3 Solve any two. 12

- The Training Institute is in process of developing new student management software from Company PQR. With the help of Use case diagram explain Module of Student enrollment in the Course.
- Explain the concept of "component and connector view" in software architecture and why it's important to visualize how different parts of the software connect.
- With the help of example and neat diagram explain how Prototype Model is used in software development.

Section – II

Q.4 Solve any four. 16

- What are the levels of Testing and illustrate its importance at every level?
- Explain the concepts of black-box testing and white-box testing.
- Differentiate Between Procedural and Quantitative Approaches of Quality Planning.
- Discuss risk management planning in software engineering projects. Explain the process of identifying, analyzing, and mitigating risks throughout the project lifecycle.
- How the "iterative project management life cycle" works and why it is beneficial for managing projects.
- Explain the role of the "APM Toolkit" in Agile Project Management and how it helps in managing projects efficiently.

Q.5 Solve any two.

- a) What are Test Cases and Test Criteria. Prepare the test cases used for testing of User Authentication Page.
- b) You are working as Software Development Team member illustrate with help of example following Terminologies used in the Agile Project Management
 - i) Sprint
 - ii) Sprint review
 - iii) Scrum Master
 - iv) Backlog
 - v) Sprint retrospective
 - vi) Product Owner
- c) With help of example explain Project management process.

Seat No.	
-------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In project management, what does "staffing" primarily involve?
 - a) Allocating tasks to team members
 - b) Setting the project budget
 - c) Defining the project scope
 - d) Identifying potential risks
- 2) What does APM stand for in project management?
 - a) Agile Project Management
 - b) Advanced Project Metrics
 - c) Automated Project Management
 - d) Associated Project Methodology
- 3) What is a fundamental aspect of Agile methodologies like Scrum?
 - a) Extensive upfront planning
 - b) Fixed scope and requirements
 - c) Iterative cycles of work and continuous feedback
 - d) Linear progression of project phases
- 4) Which toolkit is often utilized to enhance project management efficiency and effectiveness?

a) Gantt Chart	b) APM Toolkit
c) RACI Matrix	d) SWOT Analysis
- 5) What is primary objective of the software development process?
 - a) Generating user documentation
 - b) Meeting customer requirements
 - c) Reducing development costs
 - d) Enhancing project timelines
- 6) What is the primary goal of the Time Boxing model?
 - a) Minimizing development costs
 - b) Maximizing customer involvement
 - c) Controlling project duration
 - d) Improving code quality

- 7) Why is involving end-users in the requirement gathering process important?
- a) To reduce project costs
 - b) To avoid documenting requirements
 - c) To complete the requirement process quickly
 - d) To get insights into the system's intended use and needs
- 8) What does a use case diagram represent in software engineering?
- a) The flow of data in the system
 - b) The functionalities and interactions of the system with its users
 - c) The system's database structure
 - d) The system's performance metrics
- 9) Which design principle encourages extending the functionality of a software module without modifying its source code?
- a) Open Closed Principle
 - b) Coupling
 - c) Cohesion
 - d) Functional Design
- 10) Which design level focuses on refining the high-level design and making it more detailed and specific?
- a) Conceptual Design
 - b) High-Level Design
 - c) Detailed Design
 - d) Technical Design
- 11) In design, what is the significance of "coupling"?
- a) It refers to the strength of the relationship between software components
 - b) It refers to how well a component performs its intended function
 - c) It refers to the number of functions within a software component
 - d) It refers to the number of software components
- 12) What type of testing examines the software from the user's perspective without knowledge of its internal structure?
- a) Black-box testing
 - b) White-box testing
 - c) Functional testing
 - d) System testing
- 13) What is the primary goal of software testing?
- a) To find and fix bugs in the software
 - b) To design the software architecture
 - c) To write the initial code for the software
 - d) To create software documentation
- 14) What is the focus of "quality planning" in project management?
- a) Identifying project risks
 - b) Planning for quality throughout the project
 - c) Identifying project requirements
 - d) Planning for project staffing

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Solve any four. 16

- What is Software Engineering? Explain the steps involved in Software Development Life Cycle.
- How time boxing model is useful in Software Development explain with help of Example
- How Software Requirement specification (SRS) document is important in Software Development explain with help of Characteristics of SRS.
- With the help of Use case diagram explain Online commerce business model.
- Explain the role of software architecture in the development of complex software systems. Discuss the key responsibilities and goals of software architects.
- Explain the "Open Closed Principle" in software design and why it's essential for creating flexible and extensible software?

Q.3 Solve any two. 12

- The Training Institute is in process of developing new student management software from Company PQR. With the help of Use case diagram explain Module of Student enrollment in the Course.
- Explain the concept of "component and connector view" in software architecture and why it's important to visualize how different parts of the software connect.
- With the help of example and neat diagram explain how Prototype Model is used in software development.

Section – II

Q.4 Solve any four. 16

- What are the levels of Testing and illustrate its importance at every level?
- Explain the concepts of black-box testing and white-box testing.
- Differentiate Between Procedural and Quantitative Approaches of Quality Planning.
- Discuss risk management planning in software engineering projects. Explain the process of identifying, analyzing, and mitigating risks throughout the project lifecycle.
- How the "iterative project management life cycle" works and why it is beneficial for managing projects.
- Explain the role of the "APM Toolkit" in Agile Project Management and how it helps in managing projects efficiently.

Q.5 Solve any two.

- a) What are Test Cases and Test Criteria. Prepare the test cases used for testing of User Authentication Page.
- b) You are working as Software Development Team member illustrate with help of example following Terminologies used in the Agile Project Management
 - i) Sprint
 - ii) Sprint review
 - iii) Scrum Master
 - iv) Backlog
 - v) Sprint retrospective
 - vi) Product Owner
- c) With help of example explain Project management process.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which design level focuses on refining the high-level design and making it more detailed and specific?

a) Conceptual Design	b) High-Level Design
c) Detailed Design	d) Technical Design
- 2) In design, what is the significance of "coupling"?
 - a) It refers to the strength of the relationship between software components
 - b) It refers to how well a component performs its intended function
 - c) It refers to the number of functions within a software component
 - d) It refers to the number of software components
- 3) What type of testing examines the software from the user's perspective without knowledge of its internal structure?

a) Black-box testing	b) White-box testing
c) Functional testing	d) System testing
- 4) What is the primary goal of software testing?
 - a) To find and fix bugs in the software
 - b) To design the software architecture
 - c) To write the initial code for the software
 - d) To create software documentation
- 5) What is the focus of "quality planning" in project management?
 - a) Identifying project risks
 - b) Planning for quality throughout the project
 - c) Identifying project requirements
 - d) Planning for project staffing
- 6) In project management, what does "staffing" primarily involve?
 - a) Allocating tasks to team members
 - b) Setting the project budget
 - c) Defining the project scope
 - d) Identifying potential risks

- 7) What does APM stand for in project management?
- a) Agile Project Management
 - b) Advanced Project Metrics
 - c) Automated Project Management
 - d) Associated Project Methodology
- 8) What is a fundamental aspect of Agile methodologies like Scrum?
- a) Extensive upfront planning
 - b) Fixed scope and requirements
 - c) Iterative cycles of work and continuous feedback
 - d) Linear progression of project phases
- 9) Which toolkit is often utilized to enhance project management efficiency and effectiveness?
- a) Gantt Chart
 - b) APM Toolkit
 - c) RACI Matrix
 - d) SWOT Analysis
- 10) What is primary objective of the software development process?
- a) Generating user documentation
 - b) Meeting customer requirements
 - c) Reducing development costs
 - d) Enhancing project timelines
- 11) What is the primary goal of the Time Boxing model?
- a) Minimizing development costs
 - b) Maximizing customer involvement
 - c) Controlling project duration
 - d) Improving code quality
- 12) Why is involving end-users in the requirement gathering process important?
- a) To reduce project costs
 - b) To avoid documenting requirements
 - c) To complete the requirement process quickly
 - d) To get insights into the system's intended use and needs
- 13) What does a use case diagram represent in software engineering?
- a) The flow of data in the system
 - b) The functionalities and interactions of the system with its users
 - c) The system's database structure
 - d) The system's performance metrics
- 14) Which design principle encourages extending the functionality of a software module without modifying its source code?
- a) Open Closed Principle
 - b) Coupling
 - c) Cohesion
 - d) Functional Design

Seat No.	
-----------------	--

Set	S
------------	----------

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Software Engineering (BTN04708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Solve any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Solve any four. **16**

- a) What is Software Engineering? Explain the steps involved in Software Development Life Cycle.
- b) How time boxing model is useful in Software Development explain with help of Example
- c) How Software Requirement specification (SRS) document is important in Software Development explain with help of Characteristics of SRS.
- d) With the help of Use case diagram explain Online commerce business model.
- e) Explain the role of software architecture in the development of complex software systems. Discuss the key responsibilities and goals of software architects.
- f) Explain the "Open Closed Principle" in software design and why it's essential for creating flexible and extensible software?

Q.3 Solve any two. **12**

- a) The Training Institute is in process of developing new student management software from Company PQR. With the help of Use case diagram explain Module of Student enrollment in the Course.
- b) Explain the concept of "component and connector view" in software architecture and why it's important to visualize how different parts of the software connect.
- c) With the help of example and neat diagram explain how Prototype Model is used in software development.

Section – II

Q.4 Solve any four. **16**

- a) What are the levels of Testing and illustrate its importance at every level?
- b) Explain the concepts of black-box testing and white-box testing.
- c) Differentiate Between Procedural and Quantitative Approaches of Quality Planning.
- d) Discuss risk management planning in software engineering projects. Explain the process of identifying, analyzing, and mitigating risks throughout the project lifecycle.
- e) How the "iterative project management life cycle" works and why it is beneficial for managing projects.
- f) Explain the role of the "APM Toolkit" in Agile Project Management and how it helps in managing projects efficiently.

Q.5 Solve any two.

- a) What are Test Cases and Test Criteria. Prepare the test cases used for testing of User Authentication Page.
- b) You are working as Software Development Team member illustrate with help of example following Terminologies used in the Agile Project Management
 - i) Sprint
 - ii) Sprint review
 - iii) Scrum Master
 - iv) Backlog
 - v) Sprint retrospective
 - vi) Product Owner
- c) With help of example explain Project management process.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The main tasks of an AI agent are _____.
 - a) Input and Output
 - b) Moment and Humanly Actions
 - c) Perceiving, thinking, and acting on the environment
 - d) None of the above
- 2) The main function of problem-solving agent is to _____.
 - a) Solve the given problem and reach the goal
 - b) Find out which sequence of action will get it to the goal state.
 - c) Both a & b
 - d) None of these
- 3) The inference engine works on _____.

a) Forward Chaining	b) Backward Chaining
c) Both A and B	d) None of these
- 4) Web Crawler is an example of _____.

a) Intelligent Agent	b) Problem-solving Agent
c) Simple reflex Agent	d) Model-based Agent
- 5) The component of an Expert system is _____.

a) Knowledge Base	b) Inference Engine
c) User Interface	d) All of these
- 6) Which of the given statement is true for Conditional Probability?
 - a) Conditional Probability gives 100% accurate results.
 - b) Conditional Probability can be applied to a single event.
 - c) Conditional Probability has no effect or relevance on independent events.
 - d) None of the above.
- 7) The probabilistic reasoning depends upon _____.

a) Estimation	b) Observations
c) Likelihood	d) All of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. **16**

- a) State & Explain different types of Intelligent Agents.
- b) Explain Relaxation Labelling Methods in brief.
- c) Explain Man Vs Computers in brief.
- d) Explain in brief Computer Vision Representation.
- e) Explain Model based object Recognition in brief.

Q.3 Solve any two. **12**

- a) Explain the major components of Intelligent System.
- b) Explain the Features of an Expert System and Existing expert systems in brief.
- c) Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four **16**

- a) Explain the Language Models of NLP in brief.
- b) Explain the Information Retrieval and Information Extraction in short.
- c) Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- d) Discuss the Robotic Perception in brief.
- e) Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. **12**

- a) Explain the Speech Recognition and Machine Translation in NLP in detail.
- b) Explain the Robotic Software Architectures in brief.
- c) Discuss the Active Reinforcement in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Who is known as the -Father of AI"?
 - a) Fisher Ada
 - b) Alan Turing
 - c) John McCarthy
 - d) Allen Newell
- 2) Which term describes the common-sense of the judgmental part of problem-solving?
 - a) Values-based
 - b) Critical
 - c) Analytical
 - d) Heuristic
- 3) Artificial Intelligence is about _____.
 - a) Playing a game on Computer
 - b) Making a machine Intelligent
 - c) Programming on Machine with your own Intelligence
 - d) Putting your intelligence in Machine.
- 4) An AI agent perceives and acts upon the environment using _____.
 - a) Sensors
 - b) Perceiver
 - c) Actuators
 - d) Both a and c
- 5) Which AI technique enables the computers to understand the associations and relationships between objects and events?
 - a) Heuristic Processing
 - b) Cognitive Science
 - c) Relative Symbolism
 - d) Pattern Matching
- 6) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the _____.
 - a) Boolean Algebra
 - b) Turing Test
 - c) Logarithm
 - d) Algorithm
- 7) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the _____.
 - a) Mobile
 - b) Non-Servo
 - c) Open Loop
 - d) Intelligent

- 8) The main tasks of an AI agent are _____.
a) Input and Output
b) Moment and Humanly Actions
c) Perceiving, thinking, and acting on the environment
d) None of the above
- 9) The main function of problem-solving agent is to _____.
a) Solve the given problem and reach the goal
b) Find out which sequence of action will get it to the goal state.
c) Both a & b
d) None of these
- 10) The inference engine works on _____.
a) Forward Chaining b) Backward Chaining
c) Both A and B d) None of these
- 11) Web Crawler is an example of _____.
a) Intelligent Agent b) Problem-solving Agent
c) Simple reflex Agent d) Model-based Agent
- 12) The component of an Expert system is _____.
a) Knowledge Base b) Inference Engine
c) User Interface d) All of these
- 13) Which of the given statement is true for Conditional Probability?
a) Conditional Probability gives 100% accurate results.
b) Conditional Probability can be applied to a single event.
c) Conditional Probability has no effect or relevance on independent events.
d) None of the above.
- 14) The probabilistic reasoning depends upon _____.
a) Estimation b) Observations
c) Likelihood d) All of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- State & Explain different types of Intelligent Agents.
- Explain Relaxation Labelling Methods in brief.
- Explain Man Vs Computers in brief.
- Explain in brief Computer Vision Representation.
- Explain Model based object Recognition in brief.

Q.3 Solve any two. 12

- Explain the major components of Intelligent System.
- Explain the Features of an Expert System and Existing expert systems in brief.
- Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four 16

- Explain the Language Models of NLP in brief.
- Explain the Information Retrieval and Information Extraction in short.
- Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- Discuss the Robotic Perception in brief.
- Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. 12

- Explain the Speech Recognition and Machine Translation in NLP in detail.
- Explain the Robotic Software Architectures in brief.
- Discuss the Active Reinforcement in detail.

- 8) Web Crawler is an example of _____.
a) Intelligent Agent b) Problem-solving Agent
c) Simple reflex Agent d) Model-based Agent
- 9) The component of an Expert system is _____.
a) Knowledge Base b) Inference Engine
c) User Interface d) All of these
- 10) Which of the given statement is true for Conditional Probability?
a) Conditional Probability gives 100% accurate results.
b) Conditional Probability can be applied to a single event.
c) Conditional Probability has no effect or relevance on independent events.
d) None of the above.
- 11) The probabilistic reasoning depends upon _____.
a) Estimation b) Observations
c) Likelihood d) All of these
- 12) Who is known as the -Father of AI" ?
a) Fisher Ada b) Alan Turing
c) John McCarthy d) Allen Newell
- 13) Which term describes the common-sense of the judgmental part of problem-solving?
a) Values-based b) Critical
c) Analytical d) Heuristic
- 14) Artificial Intelligence is about _____.
a) Playing a game on Computer
b) Making a machine Intelligent
c) Programming on Machine with your own Intelligence
d) Putting your intelligence in Machine.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. **16**

- a) State & Explain different types of Intelligent Agents.
- b) Explain Relaxation Labelling Methods in brief.
- c) Explain Man Vs Computers in brief.
- d) Explain in brief Computer Vision Representation.
- e) Explain Model based object Recognition in brief.

Q.3 Solve any two. **12**

- a) Explain the major components of Intelligent System.
- b) Explain the Features of an Expert System and Existing expert systems in brief.
- c) Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four **16**

- a) Explain the Language Models of NLP in brief.
- b) Explain the Information Retrieval and Information Extraction in short.
- c) Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- d) Discuss the Robotic Perception in brief.
- e) Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. **12**

- a) Explain the Speech Recognition and Machine Translation in NLP in detail.
- b) Explain the Robotic Software Architectures in brief.
- c) Discuss the Active Reinforcement in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the given statement is true for Conditional Probability?
 - a) Conditional Probability gives 100% accurate results.
 - b) Conditional Probability can be applied to a single event.
 - c) Conditional Probability has no effect or relevance on independent events.
 - d) None of the above.
- 2) The probabilistic reasoning depends upon _____.
 - a) Estimation
 - b) Observations
 - c) Likelihood
 - d) All of these
- 3) Who is known as the -Father of AI"?
 - a) Fisher Ada
 - b) Alan Turing
 - c) John McCarthy
 - d) Allen Newell
- 4) Which term describes the common-sense of the judgmental part of problem-solving?
 - a) Values-based
 - b) Critical
 - c) Analytical
 - d) Heuristic
- 5) Artificial Intelligence is about _____.
 - a) Playing a game on Computer
 - b) Making a machine Intelligent
 - c) Programming on Machine with your own Intelligence
 - d) Putting your intelligence in Machine.
- 6) An AI agent perceives and acts upon the environment using _____.
 - a) Sensors
 - b) Perceiver
 - c) Actuators
 - d) Both a and c
- 7) Which AI technique enables the computers to understand the associations and relationships between objects and events?
 - a) Heuristic Processing
 - b) Cognitive Science
 - c) Relative Symbolism
 - d) Pattern Matching

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
AI Applications (BTN04710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- State & Explain different types of Intelligent Agents.
- Explain Relaxation Labelling Methods in brief.
- Explain Man Vs Computers in brief.
- Explain in brief Computer Vision Representation.
- Explain Model based object Recognition in brief.

Q.3 Solve any two. 12

- Explain the major components of Intelligent System.
- Explain the Features of an Expert System and Existing expert systems in brief.
- Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four 16

- Explain the Language Models of NLP in brief.
- Explain the Information Retrieval and Information Extraction in short.
- Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- Discuss the Robotic Perception in brief.
- Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. 12

- Explain the Speech Recognition and Machine Translation in NLP in detail.
- Explain the Robotic Software Architectures in brief.
- Discuss the Active Reinforcement in detail.

- 7) A _____ can be considered as a functional or departmental data warehouse of a smaller size and a more specific type than the overall company data warehouse.
- a) Warehouse
 - b) Database
 - c) Data mart
 - d) Data Table
- 8) Which of the following is not a component of Relational Marketing?
- a) Organization
 - b) BI and Data Mining
 - c) Technology
 - d) Fund
- 9) What is Six Sigma?
- a) a letter in the Greek alphabet that statisticians use to measure process variability
 - b) a methodology aimed at reducing the number of defects in a business process
 - c) a methodology aimed at reducing the amount of variability in a business process
 - d) a methodology aimed at measuring the amount of variability in a business process
- 10) Which of the following is not a stage in "Lifetime of a Customer"
- a) Acquisition
 - b) Cross/Up Selling
 - c) Bargaining
 - d) Retention
- 11) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?
- a) Business Intelligence
 - b) Data Visualization
 - c) Data Analysis
 - d) Report Generation
- 12) Which of the following is False for Supply Chain
- a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 13) Which of the following is not an optimization model?
- a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 14) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
- a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

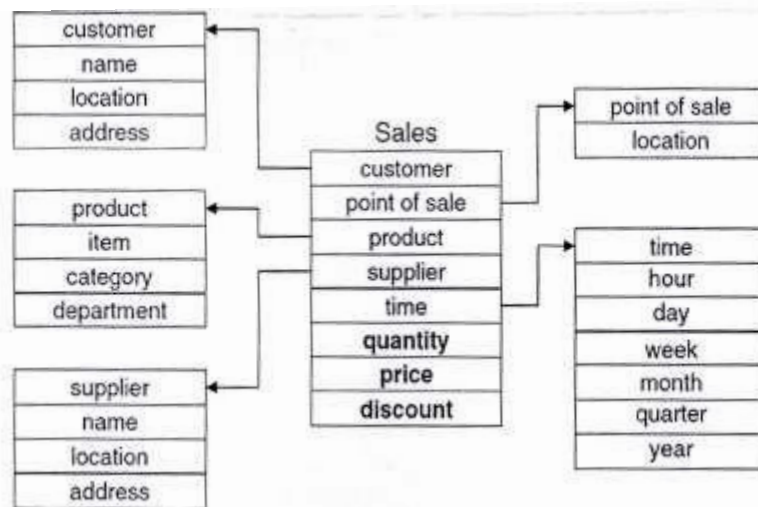
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is not a component of Relational Marketing?
 - a) Organization
 - b) BI and Data Mining
 - c) Technology
 - d) Fund
- 2) What is Six Sigma?
 - a) a letter in the Greek alphabet that statisticians use to measure process variability
 - b) a methodology aimed at reducing the number of defects in a business process
 - c) a methodology aimed at reducing the amount of variability in a business process
 - d) a methodology aimed at measuring the amount of variability in a business process
- 3) Which of the following is not a stage in "Lifetime of a Customer"
 - a) Acquisition
 - b) Cross/Up Selling
 - c) Bargaining
 - d) Retention
- 4) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?
 - a) Business Intelligence
 - b) Data Visualization
 - c) Data Analysis
 - d) Report Generation
- 5) Which of the following is False for Supply Chain
 - a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 6) Which of the following is not an optimization model?
 - a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 7) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
 - a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

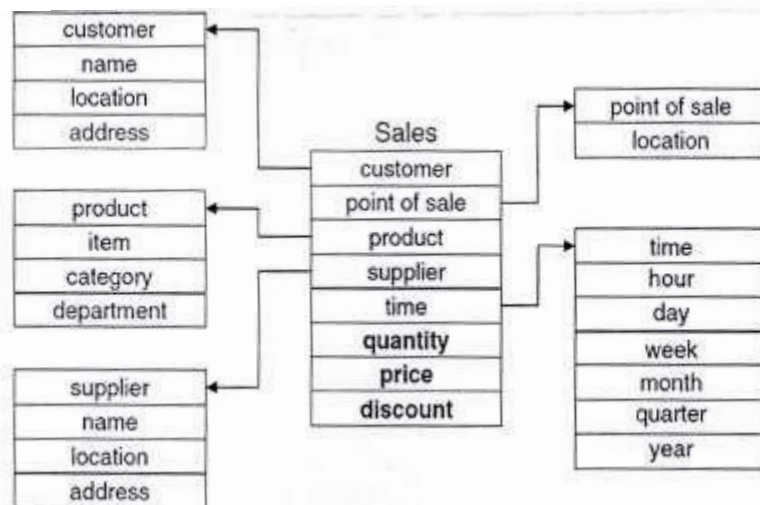
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?
 - a) Business Intelligence
 - b) Data Visualization
 - c) Data Analysis
 - d) Report Generation
- 2) Which of the following is False for Supply Chain
 - a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 3) Which of the following is not an optimization model?
 - a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 4) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
 - a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models
- 5) i) A decision support system helps in decision making but does not necessarily give a decision itself.
ii) decision support system is a computer-based application that collects organizes and analyses business data to facilitate quality business decision making for management, operations, and planning.
 - a) only i) is correct.
 - b) only ii) is correct
 - c) both are correct.
 - d) both are wrong.
- 6) Decision support systems are essential for _____.
 - a) Day-to-day operation of an organization
 - b) Providing statutory information.
 - c) Top level strategic decision making.
 - d) Ensuring that organizations are profitable.
- 7) Full form of OLAP:
 - a) Online analytical process
 - b) Online analog process
 - c) Online anal process
 - d) Online analogy process

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

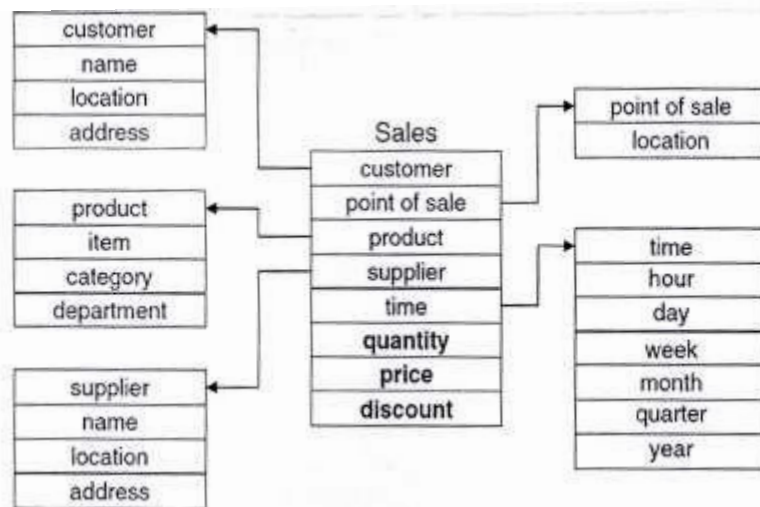
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is a broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions.

a) Data Mart	b) Data mining
c) Business intelligence	d) Artificial intelligence

- 2) A _____ can be considered as a functional or departmental data warehouse of a smaller size and a more specific type than the overall company data warehouse.

a) Warehouse	b) Database
c) Data mart	d) Data Table

- 3) Which of the following is not a component of Relational Marketing?

a) Organization	b) BI and Data Mining
c) Technology	d) Fund

- 4) What is Six Sigma?

a) a letter in the Greek alphabet that statisticians use to measure process variability
b) a methodology aimed at reducing the number of defects in a business process
c) a methodology aimed at reducing the amount of variability in a business process
d) a methodology aimed at measuring the amount of variability in a business process

- 5) Which of the following is not a stage in "Lifetime of a Customer"

a) Acquisition	b) Cross/Up Selling
c) Bargaining	d) Retention

- 6) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?

a) Business Intelligence	b) Data Visualization
c) Data Analysis	d) Report Generation

- 7) Which of the following is False for Supply Chain
- a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 8) Which of the following is not an optimization model?
- a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 9) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
- a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models
- 10) i) A decision support system helps in decision making but does not necessarily give a decision itself.
ii) decision support system is a computer-based application that collects organizes and analyses business data to facilitate quality business decision making for management, operations, and planning.
- a) only i) is correct.
 - b) only ii) is correct
 - c) both are correct.
 - d) both are wrong.
- 11) Decision support systems are essential for _____.
- a) Day-to-day operation of an organization
 - b) Providing statutory information.
 - c) Top level strategic decision making.
 - d) Ensuring that organizations are profitable.
- 12) Full form of OLAP:
- a) Online analytical process
 - b) Online analog process
 - c) Online anal process
 - d) Online analogy process
- 13) _____ is a system where operations like data extraction, transformation and loading operations are executed
- a) Data staging
 - b) Data integration
 - c) ETL
 - d) Data mart
- 14) _____ is the outcome of extraction and processing activities on data.
- a) Knowledge
 - b) Information
 - c) Data
 - d) Raw Data

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Data Science- Business Intelligence (BTN04712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

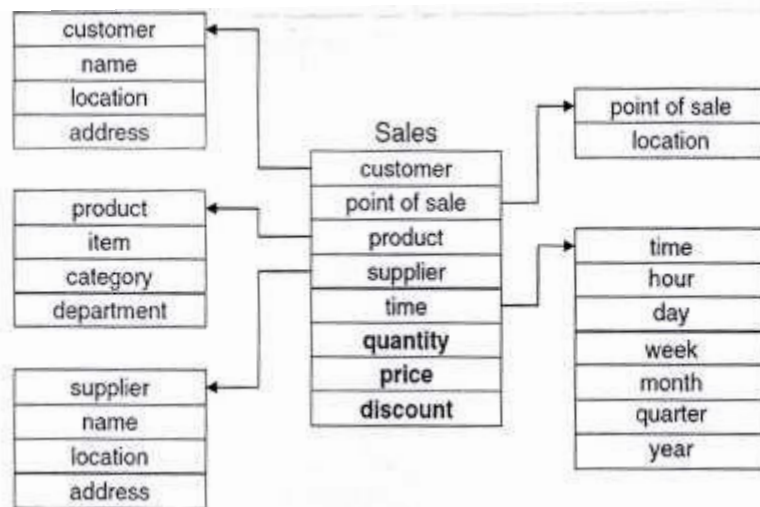
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
 - a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 2) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
 - a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability
- 3) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
 - a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 4) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
 - a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 5) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
 - a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency
- 6) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
 - a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance

- 7) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
- a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate
- 8) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
- a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 9) What is the primary objective of Detection in cloud security?
- a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 10) In cloud security, Infrastructure Protection focuses on:
- a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities
- 11) What does Foundations address within the AWS Well-Architected Framework for Reliability?
- a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 12) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?
- a) Foundations
 - b) Workload Architecture
 - c) Change Management
 - d) Failure Management
- 13) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
- a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 14) What is the primary goal of performance efficiency in cloud financial management?
- a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. **12**

- a) Describe the general architecture of AWS.
- b) What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- c) Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- d) What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. **16**

- a) Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- b) How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- c) What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. **12**

- a) Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- b) Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- c) What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- d) Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
 - a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 2) What is the primary objective of Detection in cloud security?
 - a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 3) In cloud security, Infrastructure Protection focuses on:
 - a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities
- 4) What does Foundations address within the AWS Well-Architected Framework for Reliability?
 - a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 5) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?

a) Foundations	b) Workload Architecture
c) Change Management	d) Failure Management

- 6) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
- a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 7) What is the primary goal of performance efficiency in cloud financial management?
- a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in
- 8) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
- a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 9) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
- a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability
- 10) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
- a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 11) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
- a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 12) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
- a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency
- 13) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
- a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance
- 14) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
- a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. **12**

- a) Describe the general architecture of AWS.
- b) What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- c) Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- d) What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. **16**

- a) Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- b) How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- c) What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. **12**

- a) Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- b) Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- c) What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- d) Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What does Foundations address within the AWS Well-Architected Framework for Reliability?
 - a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 2) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?
 - a) Foundations
 - b) Workload Architecture
 - c) Change Management
 - d) Failure Management
- 3) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
 - a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 4) What is the primary goal of performance efficiency in cloud financial management?
 - a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in
- 5) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
 - a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 6) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
 - a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability

- 7) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
- a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 8) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
- a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 9) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
- a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency
- 10) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
- a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance
- 11) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
- a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate
- 12) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
- a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 13) What is the primary objective of Detection in cloud security?
- a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 14) In cloud security, Infrastructure Protection focuses on:
- a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. **12**

- a) Describe the general architecture of AWS.
- b) What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- c) Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- d) What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. **16**

- a) Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- b) How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- c) What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. **12**

- a) Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- b) Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- c) What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- d) Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
 - a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance
- 2) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
 - a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate
- 3) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
 - a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 4) What is the primary objective of Detection in cloud security?
 - a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 5) In cloud security, Infrastructure Protection focuses on:
 - a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities

- 6) What does Foundations address within the AWS Well-Architected Framework for Reliability?
- a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 7) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?
- a) Foundations
 - b) Workload Architecture
 - c) Change Management
 - d) Failure Management
- 8) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
- a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 9) What is the primary goal of performance efficiency in cloud financial management?
- a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in
- 10) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
- a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 11) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
- a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability
- 12) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
- a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 13) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
- a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 14) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
- a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
IOT- Architecting IOT Solutions (BTN04714)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. 12

- a) Describe the general architecture of AWS.
- b) What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- c) Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- d) What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. 16

- a) Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- b) How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- c) What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. 12

- a) Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- b) Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- c) What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- d) Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Choose the correct statement _____.
 - a) Thyristor is a voltage-controlled device
 - b) Thyristor current controlled device
 - c) Thyristor is a Unipolar device
 - d) Thyristor is a latch proof device
- 2) R-C snubber is used in parallel with the thyristor to _____.
 - a) reduce dv/dt across it
 - b) protect against di/dt
 - c) protect over current
 - d) trigger thyristor
- 3) Class C commutation is _____ technique.
 - a) complementary commutation
 - b) load commutation
 - c) current commutation technique
 - d) resonant pulse commutation
- 4) The average ON state current of SCR is 10A for firing angle of 60° , The average ON slate current for firing angle of 0° will be _____.
 - a) Less than 10A
 - b) 5A
 - c) More than 10A
 - d) 0
- 5) A single phase fully controlled bridge rectifier is connected to a balanced 50 Hz single phase ac source. Output ripple frequency will be _____.
 - a) 100 Hz
 - b) 150 Hz
 - c) 50 Hz
 - d) 200 Hz
- 6) Three phase fully controlled rectifier converts _____.
 - a) Single phase AC to DC
 - b) DC to three phase AC
 - c) Three phase AC to DC
 - d) DC to DC
- 7) A three-phase semi converter will require _____ number of SCRs and _____ of diodes.
 - a) 6, 6
 - b) 3, 3
 - c) 12, 12
 - d) 4, 4

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I**Q.2 Solve any four 16**

- a) Why thyristor is called as latching device? Explain two transistor analogy of SCR?
- b) Explain the various mechanisms by which thyristors may be turn on.
- c) Derive an exp for Avg output voltage for single phase fully controlled rectifier with resistive load. Draw associated waveforms.
- d) With suitable circuit diagram explain operation of three phase dual converter.
- e) A three-phase semi converter is operated from 3phase 400V 50Hz mains supply and delivers power to sufficiently large inductive load having resistance of 10Ω . If it is required that average output voltage should be 50% of maximum possible voltage. Calculate
 - i) Firing angle
 - ii) Power delivered to load
 - iii) PIV

Q.3 Solve any two 12

- a) Explain operation of three phase fully controlled rectifier with highly inductive load. Derive an expression for average load voltage. Draw voltage waveform for $\alpha = 60^\circ$
- b) Derive an exp for Average voltage and RMS Voltage for single phase semi converter with resistive load. Sketch associated waveforms.
- c) What do you meant by forced commutation? How commutation takes place in class B resonant pulse commutation technique. Sketch associated waveforms.

Section – II**Q.4 Solve any four 16**

- a) Describe the principle of step-up chopper. Derive an expression for the average output voltage in terms of input dc voltage & duty cycle.
- b) What is cycloconverter? Explain operation of single-phase bridge type cycloconverter. The frequency is $f_0/f_s = 1/4$. Sketch associated waveforms.
- c) What is cyclomultiplier? Design 1:5 single phase cyclomultiplier.
- d) Explain operation of single-phase half bridge voltage source inverter with resistive load. Draw associated waveforms and derive an expression of RMS output voltage.
- e) With neat circuit diagram and appropriate waveforms explain working of basic parallel inverter with resistive load.

Q.5 Solve any two

- a) What is Voltage commutation? How process of commutation takes place in voltage commutated chopper with associated voltage and current waveform as a function of time.
- b) Explain working of 120° conduction mode, three phase bridge inverter feeding star connected purely resistive load. Draw associated line and phase voltage.
- c) With suitable block diagram describe the working of speed control of DC drive using fuzzy logic controller.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A Step-down chopper has input voltage of 80V & duty cycle is 25% then output voltage will _____.
 a) 200
 b) 320
 c) 16
 d) 20
- 2) In _____ chopper load current is always positive and load voltage is positive or negative
 a) Class C
 b) Class D
 c) Class F
 d) Both a & b
- 3) The single-phase bridge type cycloconverter uses _____ number of SCRs.
 a) 4
 b) 8
 c) 6
 d) 16
- 4) In single phase 3:1 bridge type cycloconverter, output frequency is _____.
 a) $f_o = 3 \times f_s$
 b) $f_o = f_s/3$
 c) $f_o = f_s$
 d) $f_o = 6 \times f_s$
- 5) In speed control of AC motor generally actual speed will be compared with _____.
 a) reference speed
 b) rated speed
 c) rated current
 d) load resistance
- 6) In _____ inverter output frequency is depends of commutating component and load parameters.
 a) Parallel
 b) Series
 c) modified parallel inverter
 d) None
- 7) A single-phase bridge inverter has de input voltage $V_s = 50$ V. Then amplitude of square wave is _____.
 a) 50V
 b) 25V
 c) 100V
 d) $50/\sqrt{2}$

- 8) Choose the correct statement _____.
- a) Thyristor is a voltage-controlled device
 - b) Thyristor current controlled device
 - c) Thyristor is a Unipolar device
 - d) Thyristor is a latch proof device
- 9) R-C snubber is used in parallel with the thyristor to _____.
- a) reduce dv/dt across it
 - b) protect against di/dt
 - c) protect over current
 - d) trigger thyristor
- 10) Class C commutation is _____ technique.
- a) complementary commutation
 - b) load commutation
 - c) current commutation technique
 - d) resonant pulse commutation
- 11) The average ON state current of SCR is 10A for firing angle of 60° , The average ON state current for firing angle of 0° will be _____.
- a) Less than 10A
 - b) 5A
 - c) More than 10A
 - d) 0
- 12) A single phase fully controlled bridge rectifier is connected to a balanced 50 Hz single phase ac source. Output ripple frequency will be _____.
- a) 100 Hz
 - b) 150 Hz
 - c) 50 Hz
 - d) 200 Hz
- 13) Three phase fully controlled rectifier converts _____.
- a) Single phase AC to DC
 - b) DC to three phase AC
 - c) Three phase AC to DC
 - d) DC to DC
- 14) A three-phase semi converter will require _____ number of SCRs and _____ of diodes.
- a) 6, 6
 - b) 3, 3
 - c) 12, 12
 - d) 4, 4

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Solve any four **16**

- a) Why thyristor is called as latching device? Explain two transistor analogy of SCR?
- b) Explain the various mechanisms by which thyristors may be turn on.
- c) Derive an exp for Avg output voltage for single phase fully controlled rectifier with resistive load. Draw associated waveforms.
- d) With suitable circuit diagram explain operation of three phase dual converter.
- e) A three-phase semi converter is operated from 3phase 400V 50Hz mains supply and delivers power to sufficiently large inductive load having resistance of 10Ω . If it is required that average output voltage should be 50% of maximum possible voltage. Calculate
 - i) Firing angle
 - ii) Power delivered to load
 - iii) PIV

Q.3 Solve any two **12**

- a) Explain operation of three phase fully controlled rectifier with highly inductive load. Derive an expression for average load voltage. Draw voltage waveform for $\alpha = 60^\circ$
- b) Derive an exp for Average voltage and RMS Voltage for single phase semi converter with resistive load. Sketch associated waveforms.
- c) What do you meant by forced commutation? How commutation takes place in class B resonant pulse commutation technique. Sketch associated waveforms.

Section – II

Q.4 Solve any four **16**

- a) Describe the principle of step-up chopper. Derive an expression for the average output voltage in terms of input dc voltage & duty cycle.
- b) What is cycloconverter? Explain operation of single-phase bridge type cycloconverter. The frequency is $f_0/f_s = 1/4$. Sketch associated waveforms.
- c) What is cyclomultiplier? Design 1:5 single phase cyclomultiplier.
- d) Explain operation of single-phase half bridge voltage source inverter with resistive load. Draw associated waveforms and derive an expression of RMS output voltage.
- e) With neat circuit diagram and appropriate waveforms explain working of basic parallel inverter with resistive load.

Q.5 Solve any two

- a) What is Voltage commutation? How process of commutation takes place in voltage commutated chopper with associated voltage and current waveform as a function of time.
- b) Explain working of 120° conduction mode, three phase bridge inverter feeding star connected purely resistive load. Draw associated line and phase voltage.
- c) With suitable block diagram describe the working of speed control of DC drive using fuzzy logic controller.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In single phase 3:1 bridge type cycloconverter, output frequency is _____.
 - a) $f_o = 3 \times f_s$
 - b) $f_o = f_s/3$
 - c) $f_o = f_s$
 - d) $f_o = 6 \times f_s$
- 2) In speed control of AC motor generally actual speed will be compared with _____.
 - a) reference speed
 - b) rated speed
 - c) rated current
 - d) load resistance
- 3) In _____ inverter output frequency is depends of commutating component and load parameters.
 - a) Parallel
 - b) Series
 - c) modified parallel inverter
 - d) None
- 4) A single-phase bridge inverter has de input voltage $V_s = 50$ V. Then amplitude of square wave is _____.
 - a) 50V
 - b) 25V
 - c) 100V
 - d) $50/\sqrt{2}$
- 5) Choose the correct statement _____.
 - a) Thyristor is a voltage-controlled device
 - b) Thyristor current controlled device
 - c) Thyristor is a Unipolar device
 - d) Thyristor is a latch proof device
- 6) R-C snubber is used in parallel with the thyristor to _____.
 - a) reduce dv/dt across it
 - b) protect against di/dt
 - c) protect over current
 - d) trigger thyristor
- 7) Class C commutation is _____ technique.
 - a) complementary commutation
 - b) load commutation
 - c) current commutation technique
 - d) resonant pulse commutation

- 8) The average ON state current of SCR is 10A for firing angle of 60° , The average ON state current for firing angle of 0° will be _____.
a) Less than 10A b) 5A
c) More than 10A d) 0
- 9) A single phase fully controlled bridge rectifier is connected to a balanced 50 Hz single phase ac source. Output ripple frequency will be _____.
a) 100 Hz b) 150 Hz
c) 50 Hz d) 200 Hz
- 10) Three phase fully controlled rectifier converts _____.
a) Single phase AC to DC b) DC to three phase AC
c) Three phase AC to DC d) DC to DC
- 11) A three-phase semi converter will require _____ number of SCRs and _____ of diodes.
a) 6, 6 b) 3, 3
c) 12, 12 d) 4, 4
- 12) A Step-down chopper has input voltage of 80V & duty cycle is 25% then output voltage will _____.
a) 200 b) 320
c) 16 d) 20
- 13) In _____ chopper load current is always positive and load voltage is positive or negative
a) Class C b) Class D
c) Class F d) Both a & b
- 14) The single-phase bridge type cycloconverter uses _____ number of SCRs.
a) 4 b) 8
c) 6 d) 16

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any four **16**

- a) Why thyristor is called as latching device? Explain two transistor analogy of SCR?
- b) Explain the various mechanisms by which thyristors may be turn on.
- c) Derive an exp for Avg output voltage for single phase fully controlled rectifier with resistive load. Draw associated waveforms.
- d) With suitable circuit diagram explain operation of three phase dual converter.
- e) A three-phase semi converter is operated from 3phase 400V 50Hz mains supply and delivers power to sufficiently large inductive load having resistance of 10Ω . If it is required that average output voltage should be 50% of maximum possible voltage. Calculate
 - i) Firing angle
 - ii) Power delivered to load
 - iii) PIV

Q.3 Solve any two **12**

- a) Explain operation of three phase fully controlled rectifier with highly inductive load. Derive an expression for average load voltage. Draw voltage waveform for $\alpha = 60^\circ$
- b) Derive an exp for Average voltage and RMS Voltage for single phase semi converter with resistive load. Sketch associated waveforms.
- c) What do you meant by forced commutation? How commutation takes place in class B resonant pulse commutation technique. Sketch associated waveforms.

Section – II

Q.4 Solve any four **16**

- a) Describe the principle of step-up chopper. Derive an expression for the average output voltage in terms of input dc voltage & duty cycle.
- b) What is cycloconverter? Explain operation of single-phase bridge type cycloconverter. The frequency is $f_0/f_s = 1/4$. Sketch associated waveforms.
- c) What is cyclomultiplier? Design 1:5 single phase cyclomultiplier.
- d) Explain operation of single-phase half bridge voltage source inverter with resistive load. Draw associated waveforms and derive an expression of RMS output voltage.
- e) With neat circuit diagram and appropriate waveforms explain working of basic parallel inverter with resistive load.

Q.5 Solve any two

- a) What is Voltage commutation? How process of commutation takes place in voltage commutated chopper with associated voltage and current waveform as a function of time.
- b) Explain working of 120° conduction mode, three phase bridge inverter feeding star connected purely resistive load. Draw associated line and phase voltage.
- c) With suitable block diagram describe the working of speed control of DC drive using fuzzy logic controller.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Three phase fully controlled rectifier converts _____.
 a) Single phase AC to DC b) DC to three phase AC
 c) Three phase AC to DC d) DC to DC
- 2) A three-phase semi converter will require _____ number of SCRs and _____ of diodes.
 a) 6, 6 b) 3, 3
 c) 12, 12 d) 4, 4
- 3) A Step-down chopper has input voltage of 80V & duty cycle is 25% then output voltage will _____.
 a) 200 b) 320
 c) 16 d) 20
- 4) In _____ chopper load current is always positive and load voltage is positive or negative
 a) Class C b) Class D
 c) Class F d) Both a & b
- 5) The single-phase bridge type cycloconverter uses _____ number of SCRs.
 a) 4 b) 8
 c) 6 d) 16
- 6) In single phase 3:1 bridge type cycloconverter, output frequency is _____.
 a) $f_o = 3 \times f_s$ b) $f_o = f_s/3$
 c) $f_o = f_s$ d) $f_o = 6 \times f_s$
- 7) In speed control of AC motor generally actual speed will be compared with _____.
 a) reference speed b) rated speed
 c) rated current d) load resistance
- 8) In _____ inverter output frequency is depends of commutating component and load parameters.
 a) Parallel b) Series
 c) modified parallel inverter d) None

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Power Electronics (197047701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any four **16**

- a) Why thyristor is called as latching device? Explain two transistor analogy of SCR?
- b) Explain the various mechanisms by which thyristors may be turn on.
- c) Derive an exp for Avg output voltage for single phase fully controlled rectifier with resistive load. Draw associated waveforms.
- d) With suitable circuit diagram explain operation of three phase dual converter.
- e) A three-phase semi converter is operated from 3phase 400V 50Hz mains supply and delivers power to sufficiently large inductive load having resistance of 10Ω . If it is required that average output voltage should be 50% of maximum possible voltage. Calculate
 - i) Firing angle
 - ii) Power delivered to load
 - iii) PIV

Q.3 Solve any two **12**

- a) Explain operation of three phase fully controlled rectifier with highly inductive load. Derive an expression for average load voltage. Draw voltage waveform for $\alpha = 60^\circ$
- b) Derive an exp for Average voltage and RMS Voltage for single phase semi converter with resistive load. Sketch associated waveforms.
- c) What do you meant by forced commutation? How commutation takes place in class B resonant pulse commutation technique. Sketch associated waveforms.

Section – II

Q.4 Solve any four **16**

- a) Describe the principle of step-up chopper. Derive an expression for the average output voltage in terms of input dc voltage & duty cycle.
- b) What is cycloconverter? Explain operation of single-phase bridge type cycloconverter. The frequency is $f_0/f_s = 1/4$. Sketch associated waveforms.
- c) What is cyclomultiplier? Design 1:5 single phase cyclomultiplier.
- d) Explain operation of single-phase half bridge voltage source inverter with resistive load. Draw associated waveforms and derive an expression of RMS output voltage.
- e) With neat circuit diagram and appropriate waveforms explain working of basic parallel inverter with resistive load.

Q.5 Solve any two

- a) What is Voltage commutation? How process of commutation takes place in voltage commutated chopper with associated voltage and current waveform as a function of time.
- b) Explain working of 120° conduction mode, three phase bridge inverter feeding star connected purely resistive load. Draw associated line and phase voltage.
- c) With suitable block diagram describe the working of speed control of DC drive using fuzzy logic controller.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) When there is the _____ voltage across the gate terminal, then the device shows enhanced conductivity.

a) Minimum	b) Maximum
c) Zero	d) None of these
- 2) As source drain voltage decrease, channel depth _____.

a) decreases	b) increases
c) logarithmically increases	d) exponentially increases
- 3) Gate area can be given as _____.

a) L/W	b) $L * W$
c) $2L/W$	d) $L/2W$
- 4) The overall delay is _____ to the relative resistance r .

a) Directly Proportional	b) Inversely Proportional
c) Exponentially proportional	d) Not dependent
- 5) Increase in switching speed _____ the noise problems.

a) increases	b) decreases
c) remains same	d) none of these
- 6) To design 4 input NOR Gate using CMOS Logic _____ number of Transistors are required if input signal is available in double rail format.

a) 4	b) 8
c) 6	d) 10
- 7) To design 4 input NAND Gate using Ratioed Logic _____ number of Transistors are required if inputs are available in double rail format.

a) 5	b) 7
c) 6	d) 8

- 8) A stored value remains valid as long as supply voltage is applied to the circuit is known as _____ storage device.
- a) Dynamic
 - b) Bistable
 - c) Static
 - d) none of these
- 9) A synchronizer is actually a special case of an _____.
- a) Arbiter
 - b) PLL
 - c) Router
 - d) none of these
- 10) The amount of time the input signal should be stable before the clock edge occurs is called as _____.
- a) Dynamic time
 - b) Static time
 - c) Hold Time
 - d) Setup time
- 11) A major advantage of _____ structure is that it allows for late design changes.
- a) Mesh
 - b) Grid
 - c) Star
 - d) Ring
- 12) PLLs are also used to perform _____ of communication between chips.
- a) Synchronization
 - b) Storage
 - c) Denying
 - d) Normalization
- 13) For synchronous circuits to solve the clock related to problem _____ is/are the solutions
- a) Clock Distribution
 - b) Use synchronizers and Arbiters
 - c) use PLL
 - d) All of these
- 14) With 3 bit select lines _____ operations can be performed by ALU.
- a) 8
 - b) 12
 - c) 10
 - d) 14

Seat No.	
-------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams.
 4) Assume suitable data if necessary.

Section – I

Q.2 Solve any four: **16**

- a) With the help of diagram discuss construction and working of n-MOS also calculate value of β for given parameters of n-MOS transistor designed using Si as W / L ratio is 1.75, oxide layer thickness is 2.30 nm, the electron mobility is 160 sq. cm/V sec. The threshold voltage is 0.6V. The Si specific permittivity is 7 and permittivity of free space is 8.85×10^{-14} F/cm.
- b) Why technology scaling is used and how it is achieved in MOS transistor design?
- c) Draw and Explain CMOS inverter in detail and discuss transfer characteristics.
- d) How ratioed Logic is used in CMOS Design explain using example?
- e) What is pass transistor? How it is used in designing CMOS Logic Gate using example explain?

Q.3 Solve any two: **12**

- a) Briefly explain in detail accumulation, depletion and inversion modes in MOS transistors.
- b) Calculate total power dissipation in CMOS inverter for frequency 20 MHz with Static power dissipation of 30 μ W, $V_{DD} = 3.3$ V and $C = 30$ fF
- c) Design 2 input XNOR gate using CMOS Logic and comment on number of transistors required to implement it.

Section – II

Q.4 Solve any four: **16**

- a) What is bi-stability Principle? How it is used to design Latch explain using example?
- b) What is multiplexer-based latch? Explain the use of multiplexer to implement Latch?
- c) How PLL is used for clock synchronization with help of diagram explain.
- d) What is clock skew and clock jitter in circuits?
- e) Draw ALU and explain in detail.

Q.5 Solve any two: **12**

- a) Explain operating principle of True single phase clocked register (TSPCR) with help of diagram.
- b) Explain timing classification in interconnect design.
- c) With the help of Diagram explain Static RAM implementation.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A stored value remains valid as long as supply voltage is applied to the circuit is known as _____ storage device.
 - a) Dynamic
 - b) Bistable
 - c) Static
 - d) none of these
- 2) A synchronizer is actually a special case of an _____.
 - a) Arbiter
 - b) PLL
 - c) Router
 - d) none of these
- 3) The amount of time the input signal should be stable before the clock edge occurs is called as _____.
 - a) Dynamic time
 - b) Static time
 - c) Hold Time
 - d) Setup time
- 4) A major advantage of _____ structure is that it allows for late design changes.
 - a) Mesh
 - b) Grid
 - c) Star
 - d) Ring
- 5) PLLs are also used to perform _____ of communication between chips.
 - a) Synchronization
 - b) Storage
 - c) Denying
 - d) Normalization
- 6) For synchronous circuits to solve the clock related to problem _____ is/are the solutions
 - a) Clock Distribution
 - b) Use synchronizers and Arbiters
 - c) use PLL
 - d) All of these
- 7) With 3 bit select lines _____ operations can be performed by ALU.
 - a) 8
 - b) 12
 - c) 10
 - d) 14

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams.
 4) Assume suitable data if necessary.

Section – I

Q.2 Solve any four: **16**

- a) With the help of diagram discuss construction and working of n-MOS also calculate value of β for given parameters of n-MOS transistor designed using Si as W / L ratio is 1.75, oxide layer thickness is 2.30 nm, the electron mobility is 160 sq. cm/V sec. The threshold voltage is 0.6V. The Si specific permittivity is 7 and permittivity of free space is 8.85×10^{-14} F/cm.
- b) Why technology scaling is used and how it is achieved in MOS transistor design?
- c) Draw and Explain CMOS inverter in detail and discuss transfer characteristics.
- d) How ratioed Logic is used in CMOS Design explain using example?
- e) What is pass transistor? How it is used in designing CMOS Logic Gate using example explain?

Q.3 Solve any two: **12**

- a) Briefly explain in detail accumulation, depletion and inversion modes in MOS transistors.
- b) Calculate total power dissipation in CMOS inverter for frequency 20 MHz with Static power dissipation of 30 μ W, $V_{DD} = 3.3$ V and $C = 30$ fF
- c) Design 2 input XNOR gate using CMOS Logic and comment on number of transistors required to implement it.

Section – II

Q.4 Solve any four: **16**

- a) What is bi-stability Principle? How it is used to design Latch explain using example?
- b) What is multiplexer-based latch? Explain the use of multiplexer to implement Latch?
- c) How PLL is used for clock synchronization with help of diagram explain.
- d) What is clock skew and clock jitter in circuits?
- e) Draw ALU and explain in detail.

Q.5 Solve any two: **12**

- a) Explain operating principle of True single phase clocked register (TSPCR) with help of diagram.
- b) Explain timing classification in interconnect design.
- c) With the help of Diagram explain Static RAM implementation.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A major advantage of _____ structure is that it allows for late design changes.
 - a) Mesh
 - b) Grid
 - c) Star
 - d) Ring
- 2) PLLs are also used to perform _____ of communication between chips.
 - a) Synchronization
 - b) Storage
 - c) Denying
 - d) Normalization
- 3) For synchronous circuits to solve the clock related to problem _____ is/are the solutions
 - a) Clock Distribution
 - b) Use synchronizers and Arbiters
 - c) use PLL
 - d) All of these
- 4) With 3 bit select lines _____ operations can be performed by ALU.
 - a) 8
 - b) 12
 - c) 10
 - d) 14
- 5) When there is the _____ voltage across the gate terminal, then the device shows enhanced conductivity.
 - a) Minimum
 - b) Maximum
 - c) Zero
 - d) None of these
- 6) As source drain voltage decrease, channel depth _____.
 - a) decreases
 - b) increases
 - c) logarithmically increases
 - d) exponentially increases
- 7) Gate area can be given as _____.
 - a) L/W
 - b) $L * W$
 - c) $2L/W$
 - d) $L/2W$
- 8) The overall delay is _____ to the relative resistance r .
 - a) Directly Proportional
 - b) Inversely Proportional
 - c) Exponentially proportional
 - d) Not dependent

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams.
 4) Assume suitable data if necessary.

Section – I

Q.2 Solve any four: **16**

- With the help of diagram discuss construction and working of n-MOS also calculate value of β for given parameters of n-MOS transistor designed using Si as W / L ratio is 1.75, oxide layer thickness is 2.30 nm, the electron mobility is 160 sq. cm/V sec. The threshold voltage is 0.6V. The Si specific permittivity is 7 and permittivity of free space is 8.85×10^{-14} F/cm.
- Why technology scaling is used and how it is achieved in MOS transistor design?
- Draw and Explain CMOS inverter in detail and discuss transfer characteristics.
- How ratioed Logic is used in CMOS Design explain using example?
- What is pass transistor? How it is used in designing CMOS Logic Gate using example explain?

Q.3 Solve any two: **12**

- Briefly explain in detail accumulation, depletion and inversion modes in MOS transistors.
- Calculate total power dissipation in CMOS inverter for frequency 20 MHz with Static power dissipation of 30 μ W, $V_{DD} = 3.3$ V and $C = 30$ fF
- Design 2 input XNOR gate using CMOS Logic and comment on number of transistors required to implement it.

Section – II

Q.4 Solve any four: **16**

- What is bi-stability Principle? How it is used to design Latch explain using example?
- What is multiplexer-based latch? Explain the use of multiplexer to implement Latch?
- How PLL is used for clock synchronization with help of diagram explain.
- What is clock skew and clock jitter in circuits?
- Draw ALU and explain in detail.

Q.5 Solve any two: **12**

- Explain operating principle of True single phase clocked register (TSPCR) with help of diagram.
- Explain timing classification in interconnect design.
- With the help of Diagram explain Static RAM implementation.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) To design 4 input NOR Gate using CMOS Logic _____ number of Transistors are required if input signal is available in double rail format.

a) 4	b) 8
c) 6	d) 10

- 2) To design 4 input NAND Gate using Ratioed Logic _____ number of Transistors are required if inputs are available in double rail format.

a) 5	b) 7
c) 6	d) 8

- 3) A stored value remains valid as long as supply voltage is applied to the circuit is known as _____ storage device.

a) Dynamic	b) Bistable
c) Static	d) none of these

- 4) A synchronizer is actually a special case of an _____.

a) Arbiter	b) PLL
c) Router	d) none of these

- 5) The amount of time the input signal should be stable before the clock edge occurs is called as _____.

a) Dynamic time	b) Static time
c) Hold Time	d) Setup time

- 6) A major advantage of _____ structure is that it allows for late design changes.

a) Mesh	b) Grid
c) Star	d) Ring

- 7) PLLs are also used to perform _____ of communication between chips.

a) Synchronization	b) Storage
c) Denying	d) Normalization

- 8) For synchronous circuits to solve the clock related to problem _____ is/are the solutions
- a) Clock Distribution
 - b) Use synchronizers and Arbiters
 - c) use PLL
 - d) All of these
- 9) With 3 bit select lines _____ operations can be performed by ALU.
- a) 8
 - b) 12
 - c) 10
 - d) 14
- 10) When there is the _____ voltage across the gate terminal, then the device shows enhanced conductivity.
- a) Minimum
 - b) Maximum
 - c) Zero
 - d) None of these
- 11) As source drain voltage decrease, channel depth _____.
- a) decreases
 - b) increases
 - c) logarithmically increases
 - d) exponentially increases
- 12) Gate area can be given as _____
- a) L/W
 - b) $L * W$
 - c) $2L/W$
 - d) $L/2W$
- 13) The overall delay is _____ to the relative resistance r .
- a) Directly Proportional
 - b) Inversely Proportional
 - c) Exponentially proportional
 - d) Not dependent
- 14) Increase in switching speed _____ the noise problems.
- a) increases
 - b) decreases
 - c) remains same
 - d) none of these

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
CMOSVLSI Design (197047702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams.
 4) Assume suitable data if necessary.

Section – I

Q.2 Solve any four: **16**

- With the help of diagram discuss construction and working of n-MOS also calculate value of β for given parameters of n-MOS transistor designed using Si as W / L ratio is 1.75, oxide layer thickness is 2.30 nm, the electron mobility is 160 sq. cm/V sec. The threshold voltage is 0.6V. The Si specific permittivity is 7 and permittivity of free space is 8.85×10^{-14} F/cm.
- Why technology scaling is used and how it is achieved in MOS transistor design?
- Draw and Explain CMOS inverter in detail and discuss transfer characteristics.
- How ratioed Logic is used in CMOS Design explain using example?
- What is pass transistor? How it is used in designing CMOS Logic Gate using example explain?

Q.3 Solve any two: **12**

- Briefly explain in detail accumulation, depletion and inversion modes in MOS transistors.
- Calculate total power dissipation in CMOS inverter for frequency 20 MHz with Static power dissipation of 30 μ W, $V_{DD} = 3.3$ V and $C = 30$ fF
- Design 2 input XNOR gate using CMOS Logic and comment on number of transistors required to implement it.

Section – II

Q.4 Solve any four: **16**

- What is bi-stability Principle? How it is used to design Latch explain using example?
- What is multiplexer-based latch? Explain the use of multiplexer to implement Latch?
- How PLL is used for clock synchronization with help of diagram explain.
- What is clock skew and clock jitter in circuits?
- Draw ALU and explain in detail.

Q.5 Solve any two: **12**

- Explain operating principle of True single phase clocked register (TSPCR) with help of diagram.
- Explain timing classification in interconnect design.
- With the help of Diagram explain Static RAM implementation.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Maximum worldwide users for mobile services are on _____ network.
 - a) CDMA
 - b) CDMA 2000
 - c) IEEE 802.11
 - d) GSM
- 2) _____ range covers maximum geographical range of all.
 - a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 3) Which of the following is responsible for managing and allocating radio frequencies in a cellular network?
 - a) Base Station Controller (BSC)
 - b) Mobile Station (MS)
 - c) Mobile Switching Center (MSC)
 - d) Frequency Allocation Table (FAT)
- 4) In a FHSS time spent on each channel is _____ time.
 - a) dwell
 - b) channel
 - c) hop
 - d) stay in
- 5) What is the purpose of a control channel in a cellular network?
 - a) To carry user data during calls or data sessions
 - b) To provide synchronization and signaling information
 - c) To encrypt voice and data transmissions
 - d) To allocate frequencies for each cell
- 6) In a typical GSM network three zones and base station forms _____.
 - a) super zone
 - b) sector
 - c) cell
 - d) cluster
- 7) In GSM a system which allows MSC to communicate with other networks like PSTN & ISDN is _____.
 - a) BSS
 - b) OSS
 - c) GSS
 - d) NSS

- 8) What is the primary use case of Ad hoc mode in WLAN?
- a) Home wireless networks
 - b) Enterprise wireless networks
 - c) Temporary network setup in conferences or events
 - d) Public Wi-Fi hotspots
- 9) In GSM when transmitted as half rate, user data is mapped at same slot but in _____ frame
- a) duplicate
 - b) half
 - c) alternate
 - d) double
- 10) What is the typical range of Ad hoc mode in WLAN?
- a) Few meters
 - b) Few hundred meters
 - c) Few kilometers
 - d) Depends on the transmit power of the devices
- 11) In IEEE 802.11 DSSS spreading is achieved using _____.
- a) Walsh Code
 - b) Training sequence
 - c) Barker Sequence
 - d) none of above
- 12) A Bluetooth operates at _____ band
- a) 2.4 GHz
 - b) 2 GHz
 - c) 620 MHz
 - d) 56 MHz
- 13) Agent discovery & solicitation terms are associated with _____ layer
- a) mobile network
 - b) mobile IP
 - c) transport
 - d) all of above
- 14) In IEEE 802.11 MAC packet structure, first two bytes are _____.
- a) frame control
 - b) duration ID
 - c) preamble
 - d) sequence number

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two: **12**

- a) What is microcell zone concept? With suitable example show how it improves capacity in a cellular system.
- b) How Walsh code are generated in IS95. What is its role in forward link and reverse link?
- c) Describe TCH/FS, SACCH & FACCH channel coding in GSM signal processing.

Q.3 Solve any four: **16**

- a) Justify how cell sectoring can increase user capacity?
- b) With suitable example discuss effect of Δ on handoff.
- c) Discuss long code generation and its use in CDMA forward & reverse channels.
- d) Explain FHSS transmitter & receiver.
- e) What is co channel interference? How it can be combated?

Section – II

Q.4 Solve any two: **12**

- a) With suitable diagrams explain any four WATM access scenarios.
- b) With suitable diagram explain basic DFWMAC-DCF using CSMA/CA.
- c) Draw & explain how Bluetooth Piconet & Scatternet are formed.

Q.5 Solve any four: **16**

- a) Explain IP packet delivery to a mobile node using tunnel.
- b) Draw & explain in short - agent solicitation packet in mobile IP.
- c) Explain power management in an ad-hoc network.
- d) Explain IP in IP encapsulation.
- e) Explain why reverse tunneling is required in mobile network layer.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the primary use case of Ad hoc mode in WLAN?
 - a) Home wireless networks
 - b) Enterprise wireless networks
 - c) Temporary network setup in conferences or events
 - d) Public Wi-Fi hotspots
- 2) In GSM when transmitted as half rate, user data is mapped at same slot but in _____ frame
 - a) duplicate
 - b) half
 - c) alternate
 - d) double
- 3) What is the typical range of Ad hoc mode in WLAN?
 - a) Few meters
 - b) Few hundred meters
 - c) Few kilometers
 - d) Depends on the transmit power of the devices
- 4) In IEEE 802.11 DSSS spreading is achieved using _____.
 - a) Walsh Code
 - b) Training sequence
 - c) Barker Sequence
 - d) none of above
- 5) A Bluetooth operates at _____ band
 - a) 2.4 GHz
 - b) 2 GHz
 - c) 620 MHz
 - d) 56 MHz
- 6) Agent discovery & solicitation terms are associated with _____ layer
 - a) mobile network
 - b) mobile IP
 - c) transport
 - d) all of above
- 7) In IEEE 802.11 MAC packet structure, first two bytes are _____.
 - a) frame control
 - b) duration ID
 - c) preamble
 - d) sequence number
- 8) Maximum worldwide users for mobile services are on _____ network.
 - a) CDMA
 - b) CDMA 2000
 - c) IEEE 802.11
 - d) GSM

- 9) _____ range covers maximum geographical range of all.
- a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 10) Which of the following is responsible for managing and allocating radio frequencies in a cellular network?
- a) Base Station Controller (BSC)
 - b) Mobile Station (MS)
 - c) Mobile Switching Center (MSC)
 - d) Frequency Allocation Table (FAT)
- 11) In a FHSS time spent on each channel is _____ time.
- a) dwell
 - b) channel
 - c) hop
 - d) stay in
- 12) What is the purpose of a control channel in a cellular network?
- a) To carry user data during calls or data sessions
 - b) To provide synchronization and signaling information
 - c) To encrypt voice and data transmissions
 - d) To allocate frequencies for each cell
- 13) In a typical GSM network three zones and base station forms _____.
- a) super zone
 - b) sector
 - c) cell
 - d) cluster
- 14) In GSM a system which allows MSC to communicate with other networks like PSTN & ISDN is _____.
- a) BSS
 - b) OSS
 - c) GSS
 - d) NSS

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two: **12**

- a) What is microcell zone concept? With suitable example show how it improves capacity in a cellular system.
- b) How Walsh code are generated in IS95. What is its role in forward link and reverse link?
- c) Describe TCH/FS, SACCH & FACCH channel coding in GSM signal processing.

Q.3 Solve any four: **16**

- a) Justify how cell sectoring can increase user capacity?
- b) With suitable example discuss effect of Δ on handoff.
- c) Discuss long code generation and its use in CDMA forward & reverse channels.
- d) Explain FHSS transmitter & receiver.
- e) What is co channel interference? How it can be combated?

Section – II

Q.4 Solve any two: **12**

- a) With suitable diagrams explain any four WATM access scenarios.
- b) With suitable diagram explain basic DFWMAC-DCF using CSMA/CA.
- c) Draw & explain how Bluetooth Piconet & Scatternet are formed.

Q.5 Solve any four: **16**

- a) Explain IP packet delivery to a mobile node using tunnel.
- b) Draw & explain in short - agent solicitation packet in mobile IP.
- c) Explain power management in an ad-hoc network.
- d) Explain IP in IP encapsulation.
- e) Explain why reverse tunneling is required in mobile network layer.

- 9) What is the purpose of a control channel in a cellular network?
- a) To carry user data during calls or data sessions
 - b) To provide synchronization and signaling information
 - c) To encrypt voice and data transmissions
 - d) To allocate frequencies for each cell
- 10) In a typical GSM network three zones and base station forms _____.
- a) super zone
 - b) sector
 - c) cell
 - d) cluster
- 11) In GSM a system which allows MSC to communicate with other networks like PSTN & ISDN is _____.
- a) BSS
 - b) OSS
 - c) GSS
 - d) NSS
- 12) What is the primary use case of Ad hoc mode in WLAN?
- a) Home wireless networks
 - b) Enterprise wireless networks
 - c) Temporary network setup in conferences or events
 - d) Public Wi-Fi hotspots
- 13) In GSM when transmitted as half rate, user data is mapped at same slot but in _____ frame
- a) duplicate
 - b) half
 - c) alternate
 - d) double
- 14) What is the typical range of Ad hoc mode in WLAN?
- a) Few meters
 - b) Few hundred meters
 - c) Few kilometers
 - d) Depends on the transmit power of the devices

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two: **12**

- a) What is microcell zone concept? With suitable example show how it improves capacity in a cellular system.
- b) How Walsh code are generated in IS95. What is its role in forward link and reverse link?
- c) Describe TCH/FS, SACCH & FACCH channel coding in GSM signal processing.

Q.3 Solve any four: **16**

- a) Justify how cell sectoring can increase user capacity?
- b) With suitable example discuss effect of Δ on handoff.
- c) Discuss long code generation and its use in CDMA forward & reverse channels.
- d) Explain FHSS transmitter & receiver.
- e) What is co channel interference? How it can be combated?

Section – II

Q.4 Solve any two: **12**

- a) With suitable diagrams explain any four WATM access scenarios.
- b) With suitable diagram explain basic DFWMAC-DCF using CSMA/CA.
- c) Draw & explain how Bluetooth Piconet & Scatternet are formed.

Q.5 Solve any four: **16**

- a) Explain IP packet delivery to a mobile node using tunnel.
- b) Draw & explain in short - agent solicitation packet in mobile IP.
- c) Explain power management in an ad-hoc network.
- d) Explain IP in IP encapsulation.
- e) Explain why reverse tunneling is required in mobile network layer.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In a typical GSM network three zones and base station forms _____.
 - a) super zone
 - b) sector
 - c) cell
 - d) cluster
- 2) In GSM a system which allows MSC to communicate with other networks like PSTN & ISDN is _____.
 - a) BSS
 - b) OSS
 - c) GSS
 - d) NSS
- 3) What is the primary use case of Ad hoc mode in WLAN?
 - a) Home wireless networks
 - b) Enterprise wireless networks
 - c) Temporary network setup in conferences or events
 - d) Public Wi-Fi hotspots
- 4) In GSM when transmitted as half rate, user data is mapped at same slot but in _____ frame
 - a) duplicate
 - b) half
 - c) alternate
 - d) double
- 5) What is the typical range of Ad hoc mode in WLAN?
 - a) Few meters
 - b) Few hundred meters
 - c) Few kilometers
 - d) Depends on the transmit power of the devices
- 6) In IEEE 802.11 DSSS spreading is achieved using _____.
 - a) Walsh Code
 - b) Training sequence
 - c) Barker Sequence
 - d) none of above
- 7) A Bluetooth operates at _____ band
 - a) 2.4 GHz
 - b) 2 GHz
 - c) 620 MHz
 - d) 56 MHz

- 8) Agent discovery & solicitation terms are associated with _____ layer
- a) mobile network
 - b) mobile IP
 - c) transport
 - d) all of above
- 9) In IEEE 802.11 MAC packet structure, first two bytes are _____.
- a) frame control
 - b) duration ID
 - c) preamble
 - d) sequence number
- 10) Maximum worldwide users for mobile services are on _____ network.
- a) CDMA
 - b) CDMA 2000
 - c) IEEE 802.11
 - d) GSM
- 11) _____ range covers maximum geographical range of all.
- a) Transmission
 - b) Detection
 - c) Interference
 - d) Handover
- 12) Which of the following is responsible for managing and allocating radio frequencies in a cellular network?
- a) Base Station Controller (BSC)
 - b) Mobile Station (MS)
 - c) Mobile Switching Center (MSC)
 - d) Frequency Allocation Table (FAT)
- 13) In a FHSS time spent on each channel is _____ time.
- a) dwell
 - b) channel
 - c) hop
 - d) stay in
- 14) What is the purpose of a control channel in a cellular network?
- a) To carry user data during calls or data sessions
 - b) To provide synchronization and signaling information
 - c) To encrypt voice and data transmissions
 - d) To allocate frequencies for each cell

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mobile Technology (197047703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Solve any two:** **12**
- a) What is microcell zone concept? With suitable example show how it improves capacity in a cellular system.
 - b) How Walsh code are generated in IS95. What is its role in forward link and reverse link?
 - c) Describe TCH/FS, SACCH & FACCH channel coding in GSM signal processing.

- Q.3 Solve any four:** **16**
- a) Justify how cell sectoring can increase user capacity?
 - b) With suitable example discuss effect of Δ on handoff.
 - c) Discuss long code generation and its use in CDMA forward & reverse channels.
 - d) Explain FHSS transmitter & receiver.
 - e) What is co channel interference? How it can be combated?

Section – II

- Q.4 Solve any two:** **12**
- a) With suitable diagrams explain any four WATM access scenarios.
 - b) With suitable diagram explain basic DFWMAC-DCF using CSMA/CA.
 - c) Draw & explain how Bluetooth Piconet & Scatternet are formed.

- Q.5 Solve any four:** **16**
- a) Explain IP packet delivery to a mobile node using tunnel.
 - b) Draw & explain in short - agent solicitation packet in mobile IP.
 - c) Explain power management in an ad-hoc network.
 - d) Explain IP in IP encapsulation.
 - e) Explain why reverse tunneling is required in mobile network layer.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In LPC1768 _____ pin select register is used to configure port pins P0.0 to P0.15.

a) PINSEL2	b) IODIR2
c) PINSEL0	d) PINSEL1
- 2) Second highest priority' exception in ARM Cortex-M3 processor is _____.

a) Reset	b) Hard fault
c) Bus fault	d) NMI
- 3) MQTT is an implementation of _____ model.

a) Message Oriented Middleware	b) RESTful
c) Both a and b	d) None of the above
- 4) CoAP is a _____.

a) Physical layer protocol	b) Service layer protocol
c) Application layer protocol	d) Network layer protocol
- 5) In RESTful model REST stands for _____.

a) Representational State Transfer
b) Resourceful Sensor Transfer
c) Resourceful State Transport
d) None of these
- 6) Modulation scheme followed by IEEE 802.15.4 standard is /are _____.

a) BPSK	b) QPSK
c) DSSS	d) all of these
- 7) _____ Cloud infrastructure is made available to the general public.

a) Public	b) Private
c) Hybrid	d) None of the above
- 8) WBAN stands for: _____.

a) Wireless Buffer Area Networks	b) Wired Body Area Networks
c) Wireless Body Area Networks	d) Wired Buffer Area Networks

Seat No.	
-----------------	--

Fourth Y. (B.Tech.)(Sem - I)(Old) (CBCS) Examination: March/April - 2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to right indicate full marks.
3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) List the device platform communication protocols, network communication protocols and network backbone protocols used in IoT.
- b) Discuss security function group components in functional view in IoT reference architecture
- c) What are the examples of security issues for which use cases are required in IoT?
- d) Write short notes on Cortex-M3 processor registers.
- e) What is significance of exceptions and interrupt in embedded application development?

Q.3 Solve any two **12**

- a) With a neat diagram illustrate the four layer architectural framework developed by CISCO for a city.
- b) Draw a use case diagram for creating authentication code using SHA1 algorithm.
- c) Illustrate ARM Cortex-M3 processor architecture in detail with a neat diagram.

Section – II

Q.4 Solve any four **16**

- a) List down and discuss in brief different wireless personal area network standards.
- b) Discuss with neat diagram the Bluetooth single mode architectural stack.
- c) Discuss with neat diagram the MQTT publish-subscribe model and topology.
- d) Discuss the architecture of MQTT protocol.
- e) Define cloud. List down and discuss five essential characteristics of cloud.

Q.5 Solve any two **12**

- a) With neat diagram illustrate the differences in management of cloud models.
- b) Discuss the architecture of CoAP protocol stack.
- c) Elaborate with neat diagram Zigbee packet format and addressing.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) WBAN stands for: _____.
 - a) Wireless Buffer Area Networks
 - b) Wired Body Area Networks
 - c) Wireless Body Area Networks
 - d) Wired Buffer Area Networks
- 2) _____ allows the consumer to use the provider's applications running on a Cloud infrastructure.
 - a) SaaS
 - b) PaaS
 - c) IaaS
 - d) None of the above
- 3) After the execution of following ARM instruction the content of R2 register will be _____. RSB R2, R2, R2, LSL #3
 - a) $R3 * 7$
 - b) $R2 * 7$
 - c) $R3 * 8$
 - d) $R2 * 8$
- 4) In ARM Cortex M3 processor Nested Vectored Interrupt Controller (NVIC) supports _____.
 - a) Nested interrupt
 - b) Vectored interrupt
 - c) Dynamic priority
 - d) All of above
- 5) ARM Cortex-M3 processor supports _____ interfaces.
 - a) Code memory buses
 - b) System bus
 - c) Private peripheral bus
 - d) All of above
- 6) What is the value of R1 after MVN R1, #7 is executed?
 - a) 0x00000007
 - b) 0xFFFFFFFF8
 - c) 0xFFFFFFFFE
 - d) 0xFFFFFFFFC
- 7) What is IoT?
 - a) network of physical objects embedded with sensors
 - b) network of virtual objects
 - c) network of objects in the ring structure
 - d) network of sensors

- 8) In LPC1768 _____ pin select register is used to configure port pins P0.0 to P0.15.
- | | |
|------------|------------|
| a) PINSEL2 | b) IODIR2 |
| c) PINSEL0 | d) PINSEL1 |
- 9) Second highest priority' exception in ARM Cortex-M3 processor is _____.
- | | |
|--------------|---------------|
| a) Reset | b) Hard fault |
| c) Bus fault | d) NMI |
- 10) MQTT is an implementation of _____ model.
- | | |
|--------------------------------|----------------------|
| a) Message Oriented Middleware | b) RESTful |
| c) Both a and b | d) None of the above |
- 11) CoAP is a _____.
- | | |
|-------------------------------|---------------------------|
| a) Physical layer protocol | b) Service layer protocol |
| c) Application layer protocol | d) Network layer protocol |
- 12) In RESTful model REST stands for _____.
- | |
|------------------------------------|
| a) Representational State Transfer |
| b) Resourceful Sensor Transfer |
| c) Resourceful State Transport |
| d) None of these |
- 13) Modulation scheme followed by IEEE 802.15.4 standard is /are _____.
- | | |
|---------|-----------------|
| a) BPSK | b) QPSK |
| c) DSSS | d) all of these |
- 14) _____ Cloud infrastructure is made available to the general public.
- | | |
|-----------|----------------------|
| a) Public | b) Private |
| c) Hybrid | d) None of the above |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.)(Sem - I)(Old) (CBCS) Examination: March/April - 2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to right indicate full marks.
3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) List the device platform communication protocols, network communication protocols and network backbone protocols used in IoT.
- b) Discuss security function group components in functional view in IoT reference architecture
- c) What are the examples of security issues for which use cases are required in IoT?
- d) Write short notes on Cortex-M3 processor registers.
- e) What is significance of exceptions and interrupt in embedded application development?

Q.3 Solve any two **12**

- a) With a neat diagram illustrate the four layer architectural framework developed by CISCO for a city.
- b) Draw a use case diagram for creating authentication code using SHA1 algorithm.
- c) Illustrate ARM Cortex-M3 processor architecture in detail with a neat diagram.

Section – II

Q.4 Solve any four **16**

- a) List down and discuss in brief different wireless personal area network standards.
- b) Discuss with neat diagram the Bluetooth single mode architectural stack.
- c) Discuss with neat diagram the MQTT publish-subscribe model and topology.
- d) Discuss the architecture of MQTT protocol.
- e) Define cloud. List down and discuss five essential characteristics of cloud.

Q.5 Solve any two **12**

- a) With neat diagram illustrate the differences in management of cloud models.
- b) Discuss the architecture of CoAP protocol stack.
- c) Elaborate with neat diagram Zigbee packet format and addressing.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In ARM Cortex M3 processor Nested Vectored Interrupt Controller (NVIC) supports _____.
 a) Nested interrupt
 b) Vectored interrupt
 c) Dynamic priority
 d) All of above
- 2) ARM Cortex-M3 processor supports _____ interfaces.
 a) Code memory buses
 b) System bus
 c) Private peripheral bus
 d) All of above
- 3) What is the value of R1 after MVN R1, #7 is executed?
 a) 0x00000007
 b) 0xFFFFFFFF8
 c) 0xFFFFF8FE
 d) 0xFFFFF8FC
- 4) What is IoT?
 a) network of physical objects embedded with sensors
 b) network of virtual objects
 c) network of objects in the ring structure
 d) network of sensors
- 5) In LPC1768 _____ pin select register is used to configure port pins P0.0 to P0.15.
 a) PINSEL2
 b) IODIR2
 c) PINSEL0
 d) PINSEL1
- 6) Second highest priority' exception in ARM Cortex-M3 processor is _____.
 a) Reset
 b) Hard fault
 c) Bus fault
 d) NMI
- 7) MQTT is an implementation of _____ model.
 a) Message Oriented Middleware
 b) RESTful
 c) Both a and b
 d) None of the above
- 8) CoAP is a _____.
 a) Physical layer protocol
 b) Service layer protocol
 c) Application layer protocol
 d) Network layer protocol

- 9) In RESTful model REST stands for _____.
a) Representational State Transfer
b) Resourceful Sensor Transfer
c) Resourceful State Transport
d) None of these
- 10) Modulation scheme followed by IEEE 802.15.4 standard is /are _____.
a) BPSK
b) QPSK
c) DSSS
d) all of these
- 11) _____ Cloud infrastructure is made available to the general public.
a) Public
b) Private
c) Hybrid
d) None of the above
- 12) WBAN stands for: _____.
a) Wireless Buffer Area Networks
b) Wired Body Area Networks
c) Wireless Body Area Networks
d) Wired Buffer Area Networks
- 13) _____ allows the consumer to use the provider's applications running on a Cloud infrastructure.
a) SaaS
b) PaaS
c) IaaS
d) None of the above
- 14) After the execution of following ARM instruction the content of R2 register will be _____. RSB R2, R2, R2, LSL #3
a) $R3 * 7$
b) $R2 * 7$
c) $R3 * 8$
d) $R2 * 8$

Seat No.	
-----------------	--

Fourth Y. (B.Tech.)(Sem - I)(Old) (CBCS) Examination: March/April - 2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to right indicate full marks.
3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) List the device platform communication protocols, network communication protocols and network backbone protocols used in IoT.
- b) Discuss security function group components in functional view in IoT reference architecture
- c) What are the examples of security issues for which use cases are required in IoT?
- d) Write short notes on Cortex-M3 processor registers.
- e) What is significance of exceptions and interrupt in embedded application development?

Q.3 Solve any two **12**

- a) With a neat diagram illustrate the four layer architectural framework developed by CISCO for a city.
- b) Draw a use case diagram for creating authentication code using SHA1 algorithm.
- c) Illustrate ARM Cortex-M3 processor architecture in detail with a neat diagram.

Section – II

Q.4 Solve any four **16**

- a) List down and discuss in brief different wireless personal area network standards.
- b) Discuss with neat diagram the Bluetooth single mode architectural stack.
- c) Discuss with neat diagram the MQTT publish-subscribe model and topology.
- d) Discuss the architecture of MQTT protocol.
- e) Define cloud. List down and discuss five essential characteristics of cloud.

Q.5 Solve any two **12**

- a) With neat diagram illustrate the differences in management of cloud models.
- b) Discuss the architecture of CoAP protocol stack.
- c) Elaborate with neat diagram Zigbee packet format and addressing.

- 9) What is IoT?
- a) network of physical objects embedded with sensors
 - b) network of virtual objects
 - c) network of objects in the ring structure
 - d) network of sensors
- 10) In LPC1768 _____ pin select register is used to configure port pins P0.0 to P0.15.
- a) PINSEL2
 - b) IODIR2
 - c) PINSEL0
 - d) PINSEL1
- 11) Second highest priority' exception in ARM Cortex-M3 processor is _____.
- a) Reset
 - b) Hard fault
 - c) Bus fault
 - d) NMI
- 12) MQTT is an implementation of _____ model.
- a) Message Oriented Middleware
 - b) RESTful
 - c) Both a and b
 - d) None of the above
- 13) CoAP is a _____.
- a) Physical layer protocol
 - b) Service layer protocol
 - c) Application layer protocol
 - d) Network layer protocol
- 14) In RESTful model REST stands for _____.
- a) Representational State Transfer
 - b) Resourceful Sensor Transfer
 - c) Resourceful State Transport
 - d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.)(Sem - I)(Old) (CBCS) Examination: March/April - 2024
ELECTRONICS ENGINEERING
Internet of Things (197047704)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to right indicate full marks.
3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) List the device platform communication protocols, network communication protocols and network backbone protocols used in IoT.
- b) Discuss security function group components in functional view in IoT reference architecture
- c) What are the examples of security issues for which use cases are required in IoT?
- d) Write short notes on Cortex-M3 processor registers.
- e) What is significance of exceptions and interrupt in embedded application development?

Q.3 Solve any two **12**

- a) With a neat diagram illustrate the four layer architectural framework developed by CISCO for a city.
- b) Draw a use case diagram for creating authentication code using SHA1 algorithm.
- c) Illustrate ARM Cortex-M3 processor architecture in detail with a neat diagram.

Section – II

Q.4 Solve any four **16**

- a) List down and discuss in brief different wireless personal area network standards.
- b) Discuss with neat diagram the Bluetooth single mode architectural stack.
- c) Discuss with neat diagram the MQTT publish-subscribe model and topology.
- d) Discuss the architecture of MQTT protocol.
- e) Define cloud. List down and discuss five essential characteristics of cloud.

Q.5 Solve any two **12**

- a) With neat diagram illustrate the differences in management of cloud models.
- b) Discuss the architecture of CoAP protocol stack.
- c) Elaborate with neat diagram Zigbee packet format and addressing.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) When _____ contacts are actuated, they interrupt the power supply through them.
 - a) normally open type
 - b) normally closed type
 - c) both a and b
 - d) None of the above
- 2) _____ is doping process whereby dopant ions are introduced into the material of interest to change its property.
 - a) Etching
 - b) Ion Implantation
 - c) Diffusion
 - d) Evaporation
- 3) A _____ is a solid cylinder or disk that fits snugly into a larger cylinder and moves under fluid pressure.
 - a) Screw
 - b) Compressor
 - c) Piston
 - d) Rod
- 4) MEMS stand for _____.
 - a) Micro Electromechanical system
 - b) Mini Electromechanical system
 - c) Micro Electrical Mechanical system
 - d) Mini Electrical Mechanical system
- 5) _____ is process, in which impure material is added to a material of interest.
 - a) Etching
 - b) Implantation
 - c) Doping
 - d) Evaporation
- 6) Actuators are interfaced with _____ card of the PLC.
 - a) Memory
 - b) Input
 - c) Output
 - d) Power
- 7) _____ is/are thermal energy measurement sensor.
 - a) Infrared sensors
 - b) Thermocouples
 - c) Semiconductor temperature sensors
 - d) All of the above

- 8) _____ is a material removal method.
- a) Surface micromachining b) Micro stereo Lithography
c) LIGA d) None of the above
- 9) Closed loop control systems are
- i) More stable than open loop systems
ii) More complex to design than open loop systems
- a) Both i) and ii) are true b) i) is true and ii) is false
c) i) is false and ii) is true d) Both i) and ii) are false
- 10) Which control system does not have a stability problem?
- a) Open loop system b) Closed loop system
c) Both a) and b) d) None of the above
- 11) In an open loop control system _____.
- a) Output is independent of control input
b) Output is dependent on control input
c) Only system parameters have effect on the control output
d) None of the above
- 12) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
- a) 0.0417 V b) 0.0217 V
c) 0.0117 V d) None of the above
- 13) A controller is essentially _____.
- a) Sensor b) Clipper
c) Comparator d) Amplifier
- 14) DC motor speed control can be achieved using _____.
- a) PWM b) Frequency modulation
c) Amplitude modulation d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Define mechatronics. List some of the application of Mechatronics.
 - b) Explain in detail the adaptive control system.
 - c) What is the process stages involved in mechatronics system design?
 - d) What are the key elements of Mechatronics system?
 - e) How displacement can be measured using LVDT?
- Q.3 Solve any two. 12**
- a) With suitable example explain Microprocessor based controllers in mechatronics.
 - b) Write a short note on: Light sensor, proximity switches.
 - c) Explain the types of pressure valve

Section – II

- Q.4 Solve any four. 16**
- a) How to control the speed of stepper motor?
 - b) What are the different stages in designing a mechatronics system, explain in detail?
 - c) How Gear trains are used to transfer and transform rotational motion.
 - d) Draw and explain the mechanisms of Ratchet and Pawl.
 - e) List down the differences between traditional design approach and mechatronics approach.
- Q.5 Solve any two. 12**
- a) Explain automatic car park barriers.
 - b) Illustrate the working of CAMs of different shapes.
 - c) Design a mechatronics system for an automatic Car Park Systems?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is a material removal method.
 - a) Surface micromachining
 - b) Micro stereo Lithography
 - c) LIGA
 - d) None of the above
- 2) Closed loop control systems are
 - i) More stable than open loop systems
 - ii) More complex to design than open loop systems
 - a) Both i) and ii) are true
 - b) i) is true and ii) is false
 - c) i) is false and ii) is true
 - d) Both i) and ii) are false
- 3) Which control system does not have a stability problem?
 - a) Open loop system
 - b) Closed loop system
 - c) Both a) and b)
 - d) None of the above
- 4) In an open loop control system _____.
 - a) Output is independent of control input
 - b) Output is dependent on control input
 - c) Only system parameters have effect on the control output
 - d) None of the above
- 5) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
 - a) 0.0417 V
 - b) 0.0217 V
 - c) 0.0117 V
 - d) None of the above
- 6) A controller is essentially _____.
 - a) Sensor
 - b) Clipper
 - c) Comparator
 - d) Amplifier
- 7) DC motor speed control can be achieved using _____.
 - a) PWM
 - b) Frequency modulation
 - c) Amplitude modulation
 - d) None of the above

- 8) When _____ contacts are actuated, they interrupt the power supply through them.
- a) normally open type
 - b) normally closed type
 - c) both a and b
 - d) None of the above
- 9) _____ is doping process whereby dopant ions are introduced into the material of interest to change its property.
- a) Etching
 - b) Ion Implantation
 - c) Diffusion
 - d) Evaporation
- 10) A _____ is a solid cylinder or disk that fits snugly into a larger cylinder and moves under fluid pressure.
- a) Screw
 - b) Compressor
 - c) Piston
 - d) Rod
- 11) MEMS stand for _____.
- a) Micro Electromechanical system
 - b) Mini Electromechanical system
 - c) Micro Electrical Mechanical system
 - d) Mini Electrical Mechanical system
- 12) _____ is process, in which impure material is added to a material of interest.
- a) Etching
 - b) Implantation
 - c) Doping
 - d) Evaporation
- 13) Actuators are interfaced with _____ card of the PLC.
- a) Memory
 - b) Input
 - c) Output
 - d) Power
- 14) _____ is/are thermal energy measurement sensor.
- a) Infrared sensors
 - b) Thermocouples
 - c) Semiconductor temperature sensors
 - d) All of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Define mechatronics. List some of the application of Mechatronics.
 - b) Explain in detail the adaptive control system.
 - c) What is the process stages involved in mechatronics system design?
 - d) What are the key elements of Mechatronics system?
 - e) How displacement can be measured using LVDT?
- Q.3 Solve any two. 12**
- a) With suitable example explain Microprocessor based controllers in mechatronics.
 - b) Write a short note on: Light sensor, proximity switches.
 - c) Explain the types of pressure valve

Section – II

- Q.4 Solve any four. 16**
- a) How to control the speed of stepper motor?
 - b) What are the different stages in designing a mechatronics system, explain in detail?
 - c) How Gear trains are used to transfer and transform rotational motion.
 - d) Draw and explain the mechanisms of Ratchet and Pawl.
 - e) List down the differences between traditional design approach and mechatronics approach.
- Q.5 Solve any two. 12**
- a) Explain automatic car park barriers.
 - b) Illustrate the working of CAMs of different shapes.
 - c) Design a mechatronics system for an automatic Car Park Systems?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In an open loop control system _____.
 - a) Output is independent of control input
 - b) Output is dependent on control input
 - c) Only system parameters have effect on the control output
 - d) None of the above
- 2) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
 - a) 0.0417 V
 - b) 0.0217 V
 - c) 0.0117 V
 - d) None of the above
- 3) A controller is essentially _____.
 - a) Sensor
 - b) Clipper
 - c) Comparator
 - d) Amplifier
- 4) DC motor speed control can be achieved using _____.
 - a) PWM
 - b) Frequency modulation
 - c) Amplitude modulation
 - d) None of the above
- 5) When _____ contacts are actuated, they interrupt the power supply through them.
 - a) normally open type
 - b) normally closed type
 - c) both a and b
 - d) None of the above
- 6) _____ is doping process whereby dopant ions are introduced into the material of interest to change its property.
 - a) Etching
 - b) Ion Implantation
 - c) Diffusion
 - d) Evaporation
- 7) A _____ is a solid cylinder or disk that fits snugly into a larger cylinder and moves under fluid pressure.
 - a) Screw
 - b) Compressor
 - c) Piston
 - d) Rod

- 8) MEMS stand for _____.
a) Micro Electromechanical system
b) Mini Electromechanical system
c) Micro Electrical Mechanical system
d) Mini Electrical Mechanical system
- 9) _____ is process, in which impure material is added to a material of interest.
a) Etching
b) Implantation
c) Doping
d) Evaporation
- 10) Actuators are interfaced with _____ card of the PLC.
a) Memory
b) Input
c) Output
d) Power
- 11) _____ is/are thermal energy measurement sensor.
a) Infrared sensors
b) Thermocouples
c) Semiconductor temperature sensors
d) All of the above
- 12) _____ is a material removal method.
a) Surface micromachining
b) Micro stereo Lithography
c) LIGA
d) None of the above
- 13) Closed loop control systems are
i) More stable than open loop systems
ii) More complex to design than open loop systems
a) Both i) and ii) are true
b) i) is true and ii) is false
c) i) is false and ii) is true
d) Both i) and ii) are false
- 14) Which control system does not have a stability problem?
a) Open loop system
b) Closed loop system
c) Both a) and b)
d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Define mechatronics. List some of the application of Mechatronics.
 - b) Explain in detail the adaptive control system.
 - c) What is the process stages involved in mechatronics system design?
 - d) What are the key elements of Mechatronics system?
 - e) How displacement can be measured using LVDT?
- Q.3 Solve any two. 12**
- a) With suitable example explain Microprocessor based controllers in mechatronics.
 - b) Write a short note on: Light sensor, proximity switches.
 - c) Explain the types of pressure valve

Section – II

- Q.4 Solve any four. 16**
- a) How to control the speed of stepper motor?
 - b) What are the different stages in designing a mechatronics system, explain in detail?
 - c) How Gear trains are used to transfer and transform rotational motion.
 - d) Draw and explain the mechanisms of Ratchet and Pawl.
 - e) List down the differences between traditional design approach and mechatronics approach.
- Q.5 Solve any two. 12**
- a) Explain automatic car park barriers.
 - b) Illustrate the working of CAMs of different shapes.
 - c) Design a mechatronics system for an automatic Car Park Systems?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Actuators are interfaced with _____ card of the PLC.
 - a) Memory
 - b) Input
 - c) Output
 - d) Power
- 2) _____ is/are thermal energy measurement sensor.
 - a) Infrared sensors
 - b) Thermocouples
 - c) Semiconductor temperature sensors
 - d) All of the above
- 3) _____ is a material removal method.
 - a) Surface micromachining
 - b) Micro stereo Lithography
 - c) LIGA
 - d) None of the above
- 4) Closed loop control systems are
 - i) More stable than open loop systems
 - ii) More complex to design than open loop systems
 - a) Both i) and ii) are true
 - b) i) is true and ii) is false
 - c) i) is false and ii) is true
 - d) Both i) and ii) are false
- 5) Which control system does not have a stability problem?
 - a) Open loop system
 - b) Closed loop system
 - c) Both a) and b)
 - d) None of the above
- 6) In an open loop control system _____.
 - a) Output is independent of control input
 - b) Output is dependent on control input
 - c) Only system parameters have effect on the control output
 - d) None of the above
- 7) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
 - a) 0.0417 V
 - b) 0.0217 V
 - c) 0.0117 V
 - d) None of the above

- 8) A controller is essentially _____.
a) Sensor
b) Clipper
c) Comparator
d) Amplifier
- 9) DC motor speed control can be achieved using _____.
a) PWM
b) Frequency modulation
c) Amplitude modulation
d) None of the above
- 10) When _____ contacts are actuated, they interrupt the power supply through them.
a) normally open type
b) normally closed type
c) both a and b
d) None of the above
- 11) _____ is doping process whereby dopant ions are introduced into the material of interest to change its property.
a) Etching
b) Ion Implantation
c) Diffusion
d) Evaporation
- 12) A _____ is a solid cylinder or disk that fits snugly into a larger cylinder and moves under fluid pressure.
a) Screw
b) Compressor
c) Piston
d) Rod
- 13) MEMS stand for _____.
a) Micro Electromechanical system
b) Mini Electromechanical system
c) Micro Electrical Mechanical system
d) Mini Electrical Mechanical system
- 14) _____ is process, in which impure material is added to a material of interest.
a) Etching
b) Implantation
c) Doping
d) Evaporation

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (197047708)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Attempt any two question from the both sections.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Define mechatronics. List some of the application of Mechatronics.
 - b) Explain in detail the adaptive control system.
 - c) What is the process stages involved in mechatronics system design?
 - d) What are the key elements of Mechatronics system?
 - e) How displacement can be measured using LVDT?
- Q.3 Solve any two. 12**
- a) With suitable example explain Microprocessor based controllers in mechatronics.
 - b) Write a short note on: Light sensor, proximity switches.
 - c) Explain the types of pressure valve

Section – II

- Q.4 Solve any four. 16**
- a) How to control the speed of stepper motor?
 - b) What are the different stages in designing a mechatronics system, explain in detail?
 - c) How Gear trains are used to transfer and transform rotational motion.
 - d) Draw and explain the mechanisms of Ratchet and Pawl.
 - e) List down the differences between traditional design approach and mechatronics approach.
- Q.5 Solve any two. 12**
- a) Explain automatic car park barriers.
 - b) Illustrate the working of CAMs of different shapes.
 - c) Design a mechatronics system for an automatic Car Park Systems?

Seat No.	
-------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING

Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is a database?
 - a) A collection of unorganized data
 - b) A structured collection of related data
 - c) A single file containing text-based information
 - d) A presentation software for data visualization

- 2) Which of the following is a primary key in a relational database?
 - a) Any attribute with unique values
 - b) An attribute that can be null
 - c) A combination of attributes that uniquely identifies a record
 - d) An attribute used for sorting records

- 3) What is SQL used for in database management?
 - a) Defining data structures
 - b) Performing complex calculations
 - c) Storing and managing data
 - d) Creating graphics and images

- 4) Which SQL command is used to retrieve data from a database?

a) SELECT	b) UPDATE
c) DELETE	d) INSERT

- 5) What is a foreign key in a relational database?
 - a) A key used for encryption
 - b) An attribute that uniquely identifies a record
 - c) An attribute that references the primary key of another table
 - d) A key used for indexing purposes

- 6) Which normalization form eliminates partial dependency?
 - a) First Normal Form (1NF)
 - b) Second Normal Form (2NF)
 - c) Third Normal Form (3NF)
 - d) Boyce-Codd Normal Form (BCNF)

- 7) What does the acronym ACID stand for in the context of database transactions?
- a) Atomicity, Consistency, Isolation, Durability
 - b) Accuracy, Completeness, Integrity, Durability
 - c) Association, Consistency, Isolation, Durability
 - d) Atomicity, Completeness, Inclusion, Durability
- 8) Which type of join returns all rows from both tables?
- a) INNER JOIN
 - b) LEFT JOIN
 - c) RIGHT JOIN
 - d) FULL OUTER JOIN
- 9) In a relational database, what is a trigger?
- a) A type of constraint
 - b) A set of instructions to perform an action
 - c) A type of index
 - d) A virtual table
- 10) What is the purpose of an index in a database table?
- a) To enforce data integrity
 - b) To store large binary objects
 - c) To speed up data retrieval
 - d) To create relationships between tables
- 11) Which of the following is NOT a data manipulation command in SQL?
- a) INSERT
 - b) UPDATE
 - c) DELETE
 - d) CREATE
- 12) What is the purpose of a primary key in a database table?
- a) To establish relationships between tables
 - b) To provide a unique identifier for each record
 - c) To control access to the table
 - d) To improve query performance
- 13) Which SQL clause is used to filter the results of a query?
- a) FROM
 - b) WHERE
 - c) GROUP BY
 - d) JOIN
- 14) Which type of relationship between tables is represented by a diamond shape in an entity relationship diagram (ERD)?
- a) One-to-One
 - b) One-to-Many
 - c) Many-to-One
 - d) Many-to-Many

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE** **12**
- a) Explain any Four SQL Commands syntax with Example.
 - b) What is weak entity and strong entity?
 - c) Explain the concept of cardinality with proper E-R diagram.
 - d) What are the five main functions of a database administrator?
- Q.3 Attempt any TWO.** **16**
- a) Discuss the basic issues in the design of an ER database schema.
 - b) In SQL; explain the terms with syntax and examples. CREATE, ALTER, DROP, UPDATE
 - c) What are the drawbacks of using a file system? How DBMS overcomes that? Explain

Section – II

- Q.4 Attempt any THREE.** **12**
- a) What is BCNF. Explain with an example
 - b) Explain the following terms with a diagram; primary indexing and clustering indexing.
 - c) Explain B+ tree with an example and how insertion works.
 - d) Explain deadlock detection and recovery.
- Q.5 Attempt any TWO.** **16**
- a) Explain Locks. Illustrate Time Stamp-based protocols and Validation based protocols.
 - b) Explain in details Static Hashing, and Dynamic Hashing with proper examples.
 - c) Write a short note on - Functional dependency theory.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which type of join returns all rows from both tables?
 - a) INNER JOIN
 - b) LEFT JOIN
 - c) RIGHT JOIN
 - d) FULL OUTER JOIN
- 2) In a relational database, what is a trigger?
 - a) A type of constraint
 - b) A set of instructions to perform an action
 - c) A type of index
 - d) A virtual table
- 3) What is the purpose of an index in a database table?
 - a) To enforce data integrity
 - b) To store large binary objects
 - c) To speed up data retrieval
 - d) To create relationships between tables
- 4) Which of the following is NOT a data manipulation command in SQL?
 - a) INSERT
 - b) UPDATE
 - c) DELETE
 - d) CREATE
- 5) What is the purpose of a primary key in a database table?
 - a) To establish relationships between tables
 - b) To provide a unique identifier for each record
 - c) To control access to the table
 - d) To improve query performance
- 6) Which SQL clause is used to filter the results of a query?
 - a) FROM
 - b) WHERE
 - c) GROUP BY
 - d) JOIN
- 7) Which type of relationship between tables is represented by a diamond shape in an entity relationship diagram (ERD)?
 - a) One-to-One
 - b) One-to-Many
 - c) Many-to-One
 - d) Many-to-Many

- 8) What is a database?
- a) A collection of unorganized data
 - b) A structured collection of related data
 - c) A single file containing text-based information
 - d) A presentation software for data visualization
- 9) Which of the following is a primary key in a relational database?
- a) Any attribute with unique values
 - b) An attribute that can be null
 - c) A combination of attributes that uniquely identifies a record
 - d) An attribute used for sorting records
- 10) What is SQL used for in database management?
- a) Defining data structures
 - b) Performing complex calculations
 - c) Storing and managing data
 - d) Creating graphics and images
- 11) Which SQL command is used to retrieve data from a database?
- a) SELECT
 - b) UPDATE
 - c) DELETE
 - d) INSERT
- 12) What is a foreign key in a relational database?
- a) A key used for encryption
 - b) An attribute that uniquely identifies a record
 - c) An attribute that references the primary key of another table
 - d) A key used for indexing purposes
- 13) Which normalization form eliminates partial dependency?
- a) First Normal Form (1NF)
 - b) Second Normal Form (2NF)
 - c) Third Normal Form (3NF)
 - d) Boyce-Codd Normal Form (BCNF)
- 14) What does the acronym ACID stand for in the context of database transactions?
- a) Atomicity, Consistency, Isolation, Durability
 - b) Accuracy, Completeness, Integrity, Durability
 - c) Association, Consistency, Isolation, Durability
 - d) Atomicity, Completeness, Inclusion, Durability

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE** **12**
- a) Explain any Four SQL Commands syntax with Example.
 - b) What is weak entity and strong entity?
 - c) Explain the concept of cardinality with proper E-R diagram.
 - d) What are the five main functions of a database administrator?
- Q.3 Attempt any TWO.** **16**
- a) Discuss the basic issues in the design of an ER database schema.
 - b) In SQL; explain the terms with syntax and examples. CREATE, ALTER, DROP, UPDATE
 - c) What are the drawbacks of using a file system? How DBMS overcomes that? Explain

Section – II

- Q.4 Attempt any THREE.** **12**
- a) What is BCNF. Explain with an example
 - b) Explain the following terms with a diagram; primary indexing and clustering indexing.
 - c) Explain B+ tree with an example and how insertion works.
 - d) Explain deadlock detection and recovery.
- Q.5 Attempt any TWO.** **16**
- a) Explain Locks. Illustrate Time Stamp-based protocols and Validation based protocols.
 - b) Explain in details Static Hashing, and Dynamic Hashing with proper examples.
 - c) Write a short note on - Functional dependency theory.

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is NOT a data manipulation command in SQL?
 - a) INSERT
 - b) UPDATE
 - c) DELETE
 - d) CREATE
- 2) What is the purpose of a primary key in a database table?
 - a) To establish relationships between tables
 - b) To provide a unique identifier for each record
 - c) To control access to the table
 - d) To improve query performance
- 3) Which SQL clause is used to filter the results of a query?
 - a) FROM
 - b) WHERE
 - c) GROUP BY
 - d) JOIN
- 4) Which type of relationship between tables is represented by a diamond shape in an entity relationship diagram (ERD)?
 - a) One-to-One
 - b) One-to-Many
 - c) Many-to-One
 - d) Many-to-Many
- 5) What is a database?
 - a) A collection of unorganized data
 - b) A structured collection of related data
 - c) A single file containing text-based information
 - d) A presentation software for data visualization
- 6) Which of the following is a primary key in a relational database?
 - a) Any attribute with unique values
 - b) An attribute that can be null
 - c) A combination of attributes that uniquely identifies a record
 - d) An attribute used for sorting records
- 7) What is SQL used for in database management?
 - a) Defining data structures
 - b) Performing complex calculations
 - c) Storing and managing data
 - d) Creating graphics and images

Seat No.	
-----------------	--

Set R

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE** **12**
- a) Explain any Four SQL Commands syntax with Example.
 - b) What is weak entity and strong entity?
 - c) Explain the concept of cardinality with proper E-R diagram.
 - d) What are the five main functions of a database administrator?
- Q.3 Attempt any TWO.** **16**
- a) Discuss the basic issues in the design of an ER database schema.
 - b) In SQL; explain the terms with syntax and examples. CREATE, ALTER, DROP, UPDATE
 - c) What are the drawbacks of using a file system? How DBMS overcomes that? Explain

Section – II

- Q.4 Attempt any THREE.** **12**
- a) What is BCNF. Explain with an example
 - b) Explain the following terms with a diagram; primary indexing and clustering indexing.
 - c) Explain B+ tree with an example and how insertion works.
 - d) Explain deadlock detection and recovery.
- Q.5 Attempt any TWO.** **16**
- a) Explain Locks. Illustrate Time Stamp-based protocols and Validation based protocols.
 - b) Explain in details Static Hashing, and Dynamic Hashing with proper examples.
 - c) Write a short note on - Functional dependency theory.

Seat
No.

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which normalization form eliminates partial dependency?
 - a) First Normal Form (1NF)
 - b) Second Normal Form (2NF)
 - c) Third Normal Form (3NF)
 - d) Boyce-Codd Normal Form (BCNF)
- 2) What does the acronym ACID stand for in the context of database transactions?
 - a) Atomicity, Consistency, Isolation, Durability
 - b) Accuracy, Completeness, Integrity, Durability
 - c) Association, Consistency, Isolation, Durability
 - d) Atomicity, Completeness, Inclusion, Durability
- 3) Which type of join returns all rows from both tables?

a) INNER JOIN	b) LEFT JOIN
c) RIGHT JOIN	d) FULL OUTER JOIN
- 4) In a relational database, what is a trigger?
 - a) A type of constraint
 - b) A set of instructions to perform an action
 - c) A type of index
 - d) A virtual table
- 5) What is the purpose of an index in a database table?
 - a) To enforce data integrity
 - b) To store large binary objects
 - c) To speed up data retrieval
 - d) To create relationships between tables
- 6) Which of the following is NOT a data manipulation command in SQL?

a) INSERT	b) UPDATE
c) DELETE	d) CREATE
- 7) What is the purpose of a primary key in a database table?
 - a) To establish relationships between tables
 - b) To provide a unique identifier for each record
 - c) To control access to the table
 - d) To improve query performance

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Database Management Systems (197047709)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE** **12**
- a) Explain any Four SQL Commands syntax with Example.
 - b) What is weak entity and strong entity?
 - c) Explain the concept of cardinality with proper E-R diagram.
 - d) What are the five main functions of a database administrator?
- Q.3 Attempt any TWO.** **16**
- a) Discuss the basic issues in the design of an ER database schema.
 - b) In SQL; explain the terms with syntax and examples. CREATE, ALTER, DROP, UPDATE
 - c) What are the drawbacks of using a file system? How DBMS overcomes that? Explain

Section – II

- Q.4 Attempt any THREE.** **12**
- a) What is BCNF. Explain with an example
 - b) Explain the following terms with a diagram; primary indexing and clustering indexing.
 - c) Explain B+ tree with an example and how insertion works.
 - d) Explain deadlock detection and recovery.
- Q.5 Attempt any TWO.** **16**
- a) Explain Locks. Illustrate Time Stamp-based protocols and Validation based protocols.
 - b) Explain in details Static Hashing, and Dynamic Hashing with proper examples.
 - c) Write a short note on - Functional dependency theory.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In PID controller _____ parameter is responsible for oscillation.

a) KP	b) KD
c) PO	d) KI
- 2) Selection of the suitable actuations principle depends on:

a) Requirement forces	b) Amount of motion needed
c) Accuracy	d) All of the above
- 3) _____ is used to control the operations of electro-mechanical devices especially in tough and hazardous industrial environments.

a) Microprocessor	b) PLC
c) Microcontroller	d) None of the above
- 4) _____ converts the physical quantity such as the force or displacement into an equivalent electrical signal in the form of voltage or current.

a) Sensors	b) Actuators
c) Transducers	d) Amplifiers
- 5) A mechanism that converts any source of energy into action is called _____.

a) Sensor	b) Actuator
c) LEDs	d) All the above
- 6) _____ is/are thermal energy measurement sensor.

a) Infrared sensors	b) Thermocouples
c) Semiconductor temperature sensors	d) All of the above
- 7) Closed loop control systems are _____.

i) More stable than open loop systems.	b) i is true and ii is false
ii) More complex to design than open loop systems.	d) Both i and ii are false
a) Both i and ii are true	
c) i is false and ii is true	

- 8) Which control system does not have a stability problem?
a) Open loop system b) Closed loop system
c) Both a and b d) None of the above
- 9) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
a) 0.0417 V b) 0.0217 V
c) 0.0117 V d) None of the above
- 10) A controller is essentially _____.
a) Sensor b) Clipper
c) Comparator d) Amplifier
- 11) DC motor speed control can be achieved using _____.
a) PWM b) Frequency modulation
c) Amplitude modulation d) None of these
- 12) Cam converts _____ to _____.
a) force, energy
b) rotary motion, oscillatory motion
c) kinetic energy, potential energy
d) potential energy, kinetic energy
- 13) Gear trains are mechanisms which are very widely used to transfer and transform _____.
a) rotational motion b) kinetic energy
c) potential energy d) force
- 14) The minimum increment in input to which the sensor can respond is referred to as _____.
a) Accuracy b) Efficiency
c) Resolution d) Speed

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four. 16**
- a) What are the key elements of Mechatronics system?
 - b) Explain in detail the adaptive control system.
 - c) What are different parameters used to decide the performance of sensors?
 - d) How linear cylinder can be used to produce rotation?
 - e) Write a short note on process control valve.
- Q.3 Attempt Any Two. 12**
- a) How directional control spool and poppet valves operates?
 - b) How displacement can be measured using LVDT?
 - c) Write a short note on: Light sensor, proximity switches.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Draw and explain the mechanisms of Ratchet and Pawl.
 - b) List down the differences between traditional design approach and mechatronics approach.
 - c) Draw and explain the working of Belt drives.
 - d) Write a short note on relays and solenoids.
 - e) Explain the speed control of stepper motor.
- Q.5 Attempt Any Two. 12**
- a) Define the factors to be considered for selection of motor drive systems.
 - b) Explain hardware components in digital camera.
 - c) Draw and explain hydraulic power supply.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which control system does not have a stability problem?
 - a) Open loop system
 - b) Closed loop system
 - c) Both a and b
 - d) None of the above
- 2) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
 - a) 0.0417 V
 - b) 0.0217 V
 - c) 0.0117 V
 - d) None of the above
- 3) A controller is essentially _____.
 - a) Sensor
 - b) Clipper
 - c) Comparator
 - d) Amplifier
- 4) DC motor speed control can be achieved using _____.
 - a) PWM
 - b) Frequency modulation
 - c) Amplitude modulation
 - d) None of these
- 5) Cam converts _____ to _____.
 - a) force, energy
 - b) rotary motion, oscillatory motion
 - c) kinetic energy, potential energy
 - d) potential energy, kinetic energy
- 6) Gear trains are mechanisms which are very widely used to transfer and transform _____.
 - a) rotational motion
 - b) kinetic energy
 - c) potential energy
 - d) force
- 7) The minimum increment in input to which the sensor can respond is referred to as _____.
 - a) Accuracy
 - b) Efficiency
 - c) Resolution
 - d) Speed
- 8) In PID controller _____ parameter is responsible for oscillation.
 - a) KP
 - b) KD
 - c) PO
 - d) KI

- 9) Selection of the suitable actuations principle depends on:
a) Requirement forces b) Amount of motion needed
c) Accuracy d) All of the above
- 10) _____ is used to control the operations of electro-mechanical devices especially in tough and hazardous industrial environments.
a) Microprocessor b) PLC
c) Microcontroller d) None of the above
- 11) _____ converts the physical quantity such as the force or displacement into an equivalent electrical signal in the form of voltage or current.
a) Sensors b) Actuators
c) Transducers d) Amplifiers
- 12) A mechanism that converts any source of energy into action is called _____.
a) Sensor b) Actuator
c) LEDs d) All the above
- 13) _____ is/are thermal energy measurement sensor.
a) Infrared sensors
b) Thermocouples
c) Semiconductor temperature sensors
d) All of the above
- 14) Closed loop control systems are _____.
i) More stable than open loop systems.
ii) More complex to design than open loop systems.
a) Both i and ii are true b) i is true and ii is false
c) i is false and ii is true d) Both i and ii are false

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four. 16**
- a) What are the key elements of Mechatronics system?
 - b) Explain in detail the adaptive control system.
 - c) What are different parameters used to decide the performance of sensors?
 - d) How linear cylinder can be used to produce rotation?
 - e) Write a short note on process control valve.
- Q.3 Attempt Any Two. 12**
- a) How directional control spool and poppet valves operates?
 - b) How displacement can be measured using LVDT?
 - c) Write a short note on: Light sensor, proximity switches.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Draw and explain the mechanisms of Ratchet and Pawl.
 - b) List down the differences between traditional design approach and mechatronics approach.
 - c) Draw and explain the working of Belt drives.
 - d) Write a short note on relays and solenoids.
 - e) Explain the speed control of stepper motor.
- Q.5 Attempt Any Two. 12**
- a) Define the factors to be considered for selection of motor drive systems.
 - b) Explain hardware components in digital camera.
 - c) Draw and explain hydraulic power supply.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) DC motor speed control can be achieved using _____.
 a) PWM
 b) Frequency modulation
 c) Amplitude modulation
 d) None of these
- 2) Cam converts _____ to _____.
 a) force, energy
 b) rotary motion, oscillatory motion
 c) kinetic energy, potential energy
 d) potential energy, kinetic energy
- 3) Gear trains are mechanisms which are very widely used to transfer and transform _____.
 a) rotational motion
 b) kinetic energy
 c) potential energy
 d) force
- 4) The minimum increment in input to which the sensor can respond is referred to as _____.
 a) Accuracy
 b) Efficiency
 c) Resolution
 d) Speed
- 5) In PID controller _____ parameter is responsible for oscillation.
 a) KP
 b) KD
 c) PO
 d) KI
- 6) Selection of the suitable actuations principle depends on:
 a) Requirement forces
 b) Amount of motion needed
 c) Accuracy
 d) All of the above
- 7) _____ is used to control the operations of electro-mechanical devices especially in tough and hazardous industrial environments.
 a) Microprocessor
 b) PLC
 c) Microcontroller
 d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four. 16**
- a) What are the key elements of Mechatronics system?
 - b) Explain in detail the adaptive control system.
 - c) What are different parameters used to decide the performance of sensors?
 - d) How linear cylinder can be used to produce rotation?
 - e) Write a short note on process control valve.
- Q.3 Attempt Any Two. 12**
- a) How directional control spool and poppet valves operates?
 - b) How displacement can be measured using LVDT?
 - c) Write a short note on: Light sensor, proximity switches.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Draw and explain the mechanisms of Ratchet and Pawl.
 - b) List down the differences between traditional design approach and mechatronics approach.
 - c) Draw and explain the working of Belt drives.
 - d) Write a short note on relays and solenoids.
 - e) Explain the speed control of stepper motor.
- Q.5 Attempt Any Two. 12**
- a) Define the factors to be considered for selection of motor drive systems.
 - b) Explain hardware components in digital camera.
 - c) Draw and explain hydraulic power supply.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is/are thermal energy measurement sensor.
 - a) Infrared sensors
 - b) Thermocouples
 - c) Semiconductor temperature sensors
 - d) All of the above
- 2) Closed loop control systems are _____.
 - i) More stable than open loop systems.
 - ii) More complex to design than open loop systems.
 - a) Both i and ii are true
 - b) i is true and ii is false
 - c) i is false and ii is true
 - d) Both i and ii are false
- 3) Which control system does not have a stability problem?
 - a) Open loop system
 - b) Closed loop system
 - c) Both a and b
 - d) None of the above
- 4) A sensor, for an input of 12V gives a digital output of a word of 10 bits. Resolution approximately is _____.
 - a) 0.0417 V
 - b) 0.0217 V
 - c) 0.0117 V
 - d) None of the above
- 5) A controller is essentially _____.
 - a) Sensor
 - b) Clipper
 - c) Comparator
 - d) Amplifier
- 6) DC motor speed control can be achieved using _____.
 - a) PWM
 - b) Frequency modulation
 - c) Amplitude modulation
 - d) None of these
- 7) Cam converts _____ to _____.
 - a) force, energy
 - b) rotary motion, oscillatory motion
 - c) kinetic energy, potential energy
 - d) potential energy, kinetic energy

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Mechatronics (BTN04807)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four. 16**
- a) What are the key elements of Mechatronics system?
 - b) Explain in detail the adaptive control system.
 - c) What are different parameters used to decide the performance of sensors?
 - d) How linear cylinder can be used to produce rotation?
 - e) Write a short note on process control valve.
- Q.3 Attempt Any Two. 12**
- a) How directional control spool and poppet valves operates?
 - b) How displacement can be measured using LVDT?
 - c) Write a short note on: Light sensor, proximity switches.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Draw and explain the mechanisms of Ratchet and Pawl.
 - b) List down the differences between traditional design approach and mechatronics approach.
 - c) Draw and explain the working of Belt drives.
 - d) Write a short note on relays and solenoids.
 - e) Explain the speed control of stepper motor.
- Q.5 Attempt Any Two. 12**
- a) Define the factors to be considered for selection of motor drive systems.
 - b) Explain hardware components in digital camera.
 - c) Draw and explain hydraulic power supply.

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is a potential benefit of cloud computing?
 - a) Limited scalability
 - b) High upfront costs
 - c) On-demand resource provisioning
 - d) Increased hardware maintenance
- 2) What is a common challenge associated with cloud computing?
 - a) Improved data security
 - b) Reduced flexibility
 - c) Decreased accessibility
 - d) Vendor lock-in
- 3) What is a key advantage of containerization technology compared to traditional virtualization with hypervisors?
 - a) Higher level of isolation between applications
 - b) Lower overhead and faster startup times
 - c) Easier migration of virtual machines between hosts
 - d) Greater compatibility with legacy operating systems
- 4) What design principle advocates for the duplication of critical components and services across multiple geographic regions to ensure high availability and fault tolerance in cloud systems?
 - a) Single point of failure
 - b) Redundancy
 - c) Scalability
 - d) Elasticity
- 5) Which architectural principle emphasizes the use of loosely coupled components and services to maximize flexibility and scalability in cloud applications?
 - a) Monolithic architecture
 - b) Microservices architecture
 - c) Client-server architecture
 - d) Peer-to-peer architecture
- 6) Which challenge of cloud computing refers to the potential risk of data breaches or unauthorized access to sensitive information?
 - a) Vendor lock-in
 - b) Compliance issues
 - c) Data security concerns
 - d) Limited customization options

- 7) In which service model does the service provider manage the underlying infrastructure, while users have control over the deployed applications and configuration settings?
- a) Infrastructure as a Service (IaaS)
 - b) Platform as a Service (PaaS)
 - c) Software as a Service (SaaS)
 - d) Function as a Service (FaaS)
- 8) What is the role of API Gateway in the AWS serverless architecture described in the case study?
- a) Storing and retrieving data
 - b) Processing data streams in real-time
 - c) Managing HTTP endpoints and routes for serverless functions
 - d) Performing authentication and authorization tasks
- 9) In Function as a Service (FaaS) model, how are functions deployed and executed?
- a) On dedicated virtual machines
 - b) In containers managed by Kubernetes
 - c) In response to specific events or triggers
 - d) On physical servers in data centers
- 10) What is one of the primary concerns regarding cloud security?
- a) Decreased accessibility
 - b) Increased control over data
 - c) Data breaches and unauthorized access
 - d) Reduced cost of security measures
- 11) What is one of the primary goals of cloud service management?
- a) Maximizing upfront costs
 - b) Minimizing resource utilization
 - c) Ensuring optimal performance and availability
 - d) Increasing manual intervention in resource provisioning
- 12) What role does the Cloud Gateway play in IoT architecture?
- a) It collects and preprocesses data from IoT devices
 - b) It stores all the data generated by IoT devices
 - c) It analyzes data in real-time and triggers actions
 - d) It provides a secure connection between IoT devices and the cloud
- 13) What is the purpose of the Edge Computing layer in IoT architecture?
- a) It processes data closer to the IoT devices, reducing latency
 - b) It stores historical data for long-term analysis
 - c) It provides a graphical user interface for data visualization
 - d) It manages device authentication and access control
- 14) Which type of hypervisor runs directly on the physical hardware of a host system, allowing multiple operating systems to run concurrently on top of it?
- a) Type 1 hypervisor
 - b) Type 2 hypervisor
 - c) Kernel-based hypervisor
 - d) Hosted hypervisor

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any three. 12**
- a) Name two characteristics that differentiate cloud computing from traditional computing models.
 - b) Define and describe the concept of "private cloud."
 - c) Briefly discuss one security measure employed in cloud computing.
 - d) What are the advantages of containerisation for application deployment in the cloud?
 - e) What are the three primary cloud service models? Explain.
- Q.3 Solve any one. 08**
- a) Describe the role of hypervisors and containers in virtualisation technologies, highlighting their respective advantages and use cases in cloud computing environments.
 - b) Discuss the benefits of cloud adoption for businesses, citing examples of cost efficiency, scalability, and flexibility, while addressing potential challenges and proposing mitigation strategies.
- Q.4 Compare and contrast Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) models in cloud computing, highlighting their key features and use cases. 08**

Section – II

- Q.5 Solve any three. 12**
- a) What is the primary concern of cloud security?
 - b) Give an example of a cloud cost optimization strategy.
 - c) Explain the importance of IoT data management.
 - d) Give an examples of an IoT application in smart cities. Discuss.
 - e) Discuss case study - AWS serverless – Lambda
- Q.6 Solve any one. 08**
- a) Explain the concept of cloud service management and optimization. Discuss the key components and processes involved in managing cloud services efficiently.
 - b) Define IoT and cloud computing. Discuss the relationship between these two technologies and how they complement each other in modern computing environments.
- Q.7 What is Cloud-native application architecture? Explain benefits of Cloud-Native Application Architecture. 08**

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the role of API Gateway in the AWS serverless architecture described in the case study?
 - a) Storing and retrieving data
 - b) Processing data streams in real-time
 - c) Managing HTTP endpoints and routes for serverless functions
 - d) Performing authentication and authorization tasks
- 2) In Function as a Service (FaaS) model, how are functions deployed and executed?
 - a) On dedicated virtual machines
 - b) In containers managed by Kubernetes
 - c) In response to specific events or triggers
 - d) On physical servers in data centers
- 3) What is one of the primary concerns regarding cloud security?
 - a) Decreased accessibility
 - b) Increased control over data
 - c) Data breaches and unauthorized access
 - d) Reduced cost of security measures
- 4) What is one of the primary goals of cloud service management?
 - a) Maximizing upfront costs
 - b) Minimizing resource utilization
 - c) Ensuring optimal performance and availability
 - d) Increasing manual intervention in resource provisioning
- 5) What role does the Cloud Gateway play in IoT architecture?
 - a) It collects and preprocesses data from IoT devices
 - b) It stores all the data generated by IoT devices
 - c) It analyzes data in real-time and triggers actions
 - d) It provides a secure connection between IoT devices and the cloud

- 6) What is the purpose of the Edge Computing layer in IoT architecture?
- a) It processes data closer to the IoT devices, reducing latency
 - b) It stores historical data for long-term analysis
 - c) It provides a graphical user interface for data visualization
 - d) It manages device authentication and access control
- 7) Which type of hypervisor runs directly on the physical hardware of a host system, allowing multiple operating systems to run concurrently on top of it?
- a) Type 1 hypervisor
 - b) Type 2 hypervisor
 - c) Kernel-based hypervisor
 - d) Hosted hypervisor
- 8) Which of the following is a potential benefit of cloud computing?
- a) Limited scalability
 - b) High upfront costs
 - c) On-demand resource provisioning
 - d) Increased hardware maintenance
- 9) What is a common challenge associated with cloud computing?
- a) Improved data security
 - b) Reduced flexibility
 - c) Decreased accessibility
 - d) Vendor lock-in
- 10) What is a key advantage of containerization technology compared to traditional virtualization with hypervisors?
- a) Higher level of isolation between applications
 - b) Lower overhead and faster startup times
 - c) Easier migration of virtual machines between hosts
 - d) Greater compatibility with legacy operating systems
- 11) What design principle advocates for the duplication of critical components and services across multiple geographic regions to ensure high availability and fault tolerance in cloud systems?
- a) Single point of failure
 - b) Redundancy
 - c) Scalability
 - d) Elasticity
- 12) Which architectural principle emphasizes the use of loosely coupled components and services to maximize flexibility and scalability in cloud applications?
- a) Monolithic architecture
 - b) Microservices architecture
 - c) Client-server architecture
 - d) Peer-to-peer architecture
- 13) Which challenge of cloud computing refers to the potential risk of data breaches or unauthorized access to sensitive information?
- a) Vendor lock-in
 - b) Compliance issues
 - c) Data security concerns
 - d) Limited customization options
- 14) In which service model does the service provider manage the underlying infrastructure, while users have control over the deployed applications and configuration settings?
- a) Infrastructure as a Service (IaaS)
 - b) Platform as a Service (PaaS)
 - c) Software as a Service (SaaS)
 - d) Function as a Service (FaaS)

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any three.** **12**
- a) Name two characteristics that differentiate cloud computing from traditional computing models.
 - b) Define and describe the concept of "private cloud."
 - c) Briefly discuss one security measure employed in cloud computing.
 - d) What are the advantages of containerisation for application deployment in the cloud?
 - e) What are the three primary cloud service models? Explain.
- Q.3 Solve any one.** **08**
- a) Describe the role of hypervisors and containers in virtualisation technologies, highlighting their respective advantages and use cases in cloud computing environments.
 - b) Discuss the benefits of cloud adoption for businesses, citing examples of cost efficiency, scalability, and flexibility, while addressing potential challenges and proposing mitigation strategies.
- Q.4** Compare and contrast Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) models in cloud computing, highlighting their key features and use cases. **08**

Section – II

- Q.5 Solve any three.** **12**
- a) What is the primary concern of cloud security?
 - b) Give an example of a cloud cost optimization strategy.
 - c) Explain the importance of IoT data management.
 - d) Give an examples of an IoT application in smart cities. Discuss.
 - e) Discuss case study - AWS serverless – Lambda
- Q.6 Solve any one.** **08**
- a) Explain the concept of cloud service management and optimization. Discuss the key components and processes involved in managing cloud services efficiently.
 - b) Define IoT and cloud computing. Discuss the relationship between these two technologies and how they complement each other in modern computing environments.
- Q.7** What is Cloud-native application architecture? Explain benefits of Cloud-Native Application Architecture. **08**

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is one of the primary goals of cloud service management?
 - a) Maximizing upfront costs
 - b) Minimizing resource utilization
 - c) Ensuring optimal performance and availability
 - d) Increasing manual intervention in resource provisioning
- 2) What role does the Cloud Gateway play in IoT architecture?
 - a) It collects and preprocesses data from IoT devices
 - b) It stores all the data generated by IoT devices
 - c) It analyzes data in real-time and triggers actions
 - d) It provides a secure connection between IoT devices and the cloud
- 3) What is the purpose of the Edge Computing layer in IoT architecture?
 - a) It processes data closer to the IoT devices, reducing latency
 - b) It stores historical data for long-term analysis
 - c) It provides a graphical user interface for data visualization
 - d) It manages device authentication and access control
- 4) Which type of hypervisor runs directly on the physical hardware of a host system, allowing multiple operating systems to run concurrently on top of it?

a) Type 1 hypervisor	b) Type 2 hypervisor
c) Kernel-based hypervisor	d) Hosted hypervisor
- 5) Which of the following is a potential benefit of cloud computing?
 - a) Limited scalability
 - b) High upfront costs
 - c) On-demand resource provisioning
 - d) Increased hardware maintenance
- 6) What is a common challenge associated with cloud computing?

a) Improved data security	b) Reduced flexibility
c) Decreased accessibility	d) Vendor lock-in

- 7) What is a key advantage of containerization technology compared to traditional virtualization with hypervisors?
- a) Higher level of isolation between applications
 - b) Lower overhead and faster startup times
 - c) Easier migration of virtual machines between hosts
 - d) Greater compatibility with legacy operating systems
- 8) What design principle advocates for the duplication of critical components and services across multiple geographic regions to ensure high availability and fault tolerance in cloud systems?
- a) Single point of failure
 - b) Redundancy
 - c) Scalability
 - d) Elasticity
- 9) Which architectural principle emphasizes the use of loosely coupled components and services to maximize flexibility and scalability in cloud applications?
- a) Monolithic architecture
 - b) Microservices architecture
 - c) Client-server architecture
 - d) Peer-to-peer architecture
- 10) Which challenge of cloud computing refers to the potential risk of data breaches or unauthorized access to sensitive information?
- a) Vendor lock-in
 - b) Compliance issues
 - c) Data security concerns
 - d) Limited customization options
- 11) In which service model does the service provider manage the underlying infrastructure, while users have control over the deployed applications and configuration settings?
- a) Infrastructure as a Service (IaaS)
 - b) Platform as a Service (PaaS)
 - c) Software as a Service (SaaS)
 - d) Function as a Service (FaaS)
- 12) What is the role of API Gateway in the AWS serverless architecture described in the case study?
- a) Storing and retrieving data
 - b) Processing data streams in real-time
 - c) Managing HTTP endpoints and routes for serverless functions
 - d) Performing authentication and authorization tasks
- 13) In Function as a Service (FaaS) model, how are functions deployed and executed?
- a) On dedicated virtual machines
 - b) In containers managed by Kubernetes
 - c) In response to specific events or triggers
 - d) On physical servers in data centers
- 14) What is one of the primary concerns regarding cloud security?
- a) Decreased accessibility
 - b) Increased control over data
 - c) Data breaches and unauthorized access
 - d) Reduced cost of security measures

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any three. 12**
- a) Name two characteristics that differentiate cloud computing from traditional computing models.
 - b) Define and describe the concept of "private cloud."
 - c) Briefly discuss one security measure employed in cloud computing.
 - d) What are the advantages of containerisation for application deployment in the cloud?
 - e) What are the three primary cloud service models? Explain.
- Q.3 Solve any one. 08**
- a) Describe the role of hypervisors and containers in virtualisation technologies, highlighting their respective advantages and use cases in cloud computing environments.
 - b) Discuss the benefits of cloud adoption for businesses, citing examples of cost efficiency, scalability, and flexibility, while addressing potential challenges and proposing mitigation strategies.
- Q.4 Compare and contrast Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) models in cloud computing, highlighting their key features and use cases. 08**

Section – II

- Q.5 Solve any three. 12**
- a) What is the primary concern of cloud security?
 - b) Give an example of a cloud cost optimization strategy.
 - c) Explain the importance of IoT data management.
 - d) Give an examples of an IoT application in smart cities. Discuss.
 - e) Discuss case study - AWS serverless – Lambda
- Q.6 Solve any one. 08**
- a) Explain the concept of cloud service management and optimization. Discuss the key components and processes involved in managing cloud services efficiently.
 - b) Define IoT and cloud computing. Discuss the relationship between these two technologies and how they complement each other in modern computing environments.
- Q.7 What is Cloud-native application architecture? Explain benefits of Cloud-Native Application Architecture. 08**

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which challenge of cloud computing refers to the potential risk of data breaches or unauthorized access to sensitive information?
 - a) Vendor lock-in
 - b) Compliance issues
 - c) Data security concerns
 - d) Limited customization options
- 2) In which service model does the service provider manage the underlying infrastructure, while users have control over the deployed applications and configuration settings?
 - a) Infrastructure as a Service (IaaS)
 - b) Platform as a Service (PaaS)
 - c) Software as a Service (SaaS)
 - d) Function as a Service (FaaS)
- 3) What is the role of API Gateway in the AWS serverless architecture described in the case study?
 - a) Storing and retrieving data
 - b) Processing data streams in real-time
 - c) Managing HTTP endpoints and routes for serverless functions
 - d) Performing authentication and authorization tasks
- 4) In Function as a Service (FaaS) model, how are functions deployed and executed?
 - a) On dedicated virtual machines
 - b) In containers managed by Kubernetes
 - c) In response to specific events or triggers
 - d) On physical servers in data centers
- 5) What is one of the primary concerns regarding cloud security?
 - a) Decreased accessibility
 - b) Increased control over data
 - c) Data breaches and unauthorized access
 - d) Reduced cost of security measures

- 6) What is one of the primary goals of cloud service management?
- a) Maximizing upfront costs
 - b) Minimizing resource utilization
 - c) Ensuring optimal performance and availability
 - d) Increasing manual intervention in resource provisioning
- 7) What role does the Cloud Gateway play in IoT architecture?
- a) It collects and preprocesses data from IoT devices
 - b) It stores all the data generated by IoT devices
 - c) It analyzes data in real-time and triggers actions
 - d) It provides a secure connection between IoT devices and the cloud
- 8) What is the purpose of the Edge Computing layer in IoT architecture?
- a) It processes data closer to the IoT devices, reducing latency
 - b) It stores historical data for long-term analysis
 - c) It provides a graphical user interface for data visualization
 - d) It manages device authentication and access control
- 9) Which type of hypervisor runs directly on the physical hardware of a host system, allowing multiple operating systems to run concurrently on top of it?
- a) Type 1 hypervisor
 - b) Type 2 hypervisor
 - c) Kernel-based hypervisor
 - d) Hosted hypervisor
- 10) Which of the following is a potential benefit of cloud computing?
- a) Limited scalability
 - b) High upfront costs
 - c) On-demand resource provisioning
 - d) Increased hardware maintenance
- 11) What is a common challenge associated with cloud computing?
- a) Improved data security
 - b) Reduced flexibility
 - c) Decreased accessibility
 - d) Vendor lock-in
- 12) What is a key advantage of containerization technology compared to traditional virtualization with hypervisors?
- a) Higher level of isolation between applications
 - b) Lower overhead and faster startup times
 - c) Easier migration of virtual machines between hosts
 - d) Greater compatibility with legacy operating systems
- 13) What design principle advocates for the duplication of critical components and services across multiple geographic regions to ensure high availability and fault tolerance in cloud systems?
- a) Single point of failure
 - b) Redundancy
 - c) Scalability
 - d) Elasticity
- 14) Which architectural principle emphasizes the use of loosely coupled components and services to maximize flexibility and scalability in cloud applications?
- a) Monolithic architecture
 - b) Microservices architecture
 - c) Client-server architecture
 - d) Peer-to-peer architecture

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cloud Computing (BTN04808)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any three. 12**
- a) Name two characteristics that differentiate cloud computing from traditional computing models.
 - b) Define and describe the concept of "private cloud."
 - c) Briefly discuss one security measure employed in cloud computing.
 - d) What are the advantages of containerisation for application deployment in the cloud?
 - e) What are the three primary cloud service models? Explain.
- Q.3 Solve any one. 08**
- a) Describe the role of hypervisors and containers in virtualisation technologies, highlighting their respective advantages and use cases in cloud computing environments.
 - b) Discuss the benefits of cloud adoption for businesses, citing examples of cost efficiency, scalability, and flexibility, while addressing potential challenges and proposing mitigation strategies.
- Q.4 Compare and contrast Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) models in cloud computing, highlighting their key features and use cases. 08**

Section – II

- Q.5 Solve any three. 12**
- a) What is the primary concern of cloud security?
 - b) Give an example of a cloud cost optimization strategy.
 - c) Explain the importance of IoT data management.
 - d) Give an examples of an IoT application in smart cities. Discuss.
 - e) Discuss case study - AWS serverless – Lambda
- Q.6 Solve any one. 08**
- a) Explain the concept of cloud service management and optimization. Discuss the key components and processes involved in managing cloud services efficiently.
 - b) Define IoT and cloud computing. Discuss the relationship between these two technologies and how they complement each other in modern computing environments.
- Q.7 What is Cloud-native application architecture? Explain benefits of Cloud-Native Application Architecture. 08**

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) According to ISO, the quality system is the organizational structure, responsibilities, procedures, processes, and resources for implementing quality management.
 - a) True
 - b) False
- 2) Which of the following must not be a characteristic of a quality system?
 - a) It must be well-understood
 - b) Products or services actually do satisfy customer expectations
 - c) Emphasis on problem prevention
 - d) It must be ineffective
- 3) A single channel data system consists of a signal conditioner, A/D converter and a buffer.
 - a) True
 - b) False
- 4) In single channel data acquisition system, the output of the buffer circuitry is _____.
 - a) analog
 - b) mixed
 - c) zero
 - d) digital
- 5) Data loggers are used _____.
 - a) to store data
 - b) to process data
 - c) to manipulate data
 - d) none of above
- 6) Wave analyzers are used in the frequency range of _____.
 - a) VHF
 - b) UHF
 - c) lower RF
 - d) higher RF
- 7) In FFT Spectrum Analyzer, FFT stands for _____.
 - a) Frequency Fourier Transform
 - b) Fast Fourier Transmission
 - c) Frequency Fourier Transmission
 - d) Fast Fourier Transform

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve any two. 08**
- a) Draw the block diagram of function generator and explain method of producing sine wave.
 - b) Explain basic working principle of digital voltmeter.
 - c) Explain the various types of systematic errors encountered in measurements.
- Q.3 Solve any two 12**
- a) Explain operation of data generator with suitable block diagram.
 - b) With suitable diagram explain LCD display. Compare LED and LCD display.
 - c) What is static error? Explain different types of static errors.

Section – II

- Q.4 Solve any two. 08**
- a) Draw the Quality Loop and label all the segments.
 - b) Explain operation of basic single channel DAS with suitable block diagram.
 - c) Describe operation of Logic Analyzer with suitable block diagram.
- Q.5 Solve any two 12**
- a) What is meant by Total Quality Management? What are the basic principles? Explain the underlying steps to Total Quality Management.
 - b) What is DAS? Explain working of multichannel DAS with suitable block diagram.
 - c) Explain with help of suitable block diagram the working of FET spectrum analyzer.

- 9) In single channel data acquisition system, the output of the buffer circuitry is _____.
- | | |
|-----------|------------|
| a) analog | b) mixed |
| c) zero | d) digital |
- 10) Data loggers are used _____.
- | | |
|-----------------------|--------------------|
| a) to store data | b) to process data |
| c) to manipulate data | d) none of above |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve any two. 08**
- a) Draw the block diagram of function generator and explain method of producing sine wave.
 - b) Explain basic working principle of digital voltmeter.
 - c) Explain the various types of systematic errors encountered in measurements.
- Q.3 Solve any two 12**
- a) Explain operation of data generator with suitable block diagram.
 - b) With suitable diagram explain LCD display. Compare LED and LCD display.
 - c) What is static error? Explain different types of static errors.

Section – II

- Q.4 Solve any two. 08**
- a) Draw the Quality Loop and label all the segments.
 - b) Explain operation of basic single channel DAS with suitable block diagram.
 - c) Describe operation of Logic Analyzer with suitable block diagram.
- Q.5 Solve any two 12**
- a) What is meant by Total Quality Management? What are the basic principles? Explain the underlying steps to Total Quality Management.
 - b) What is DAS? Explain working of multichannel DAS with suitable block diagram.
 - c) Explain with help of suitable block diagram the working of FET spectrum analyzer.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) In 7 segment display, how many LEDs are used?
 - a) 8
 - b) 7
 - c) 10
 - d) 9
- 2) Error is expressed as _____.
 - a) absolute error
 - b) relative error
 - c) % error
 - d) % accuracy
- 3) According to ISO, the quality system is the organizational structure, responsibilities, procedures, processes, and resources for implementing quality management.
 - a) True
 - b) False
- 4) Which of the following must not be a characteristic of a quality system?
 - a) It must be well-understood
 - b) Products or services actually do satisfy customer expectations
 - c) Emphasis on problem prevention
 - d) It must be ineffective
- 5) A single channel data system consists of a signal conditioner, A/D converter and a buffer.
 - a) True
 - b) False
- 6) In single channel data acquisition system, the output of the buffer circuitry is _____.
 - a) analog
 - b) mixed
 - c) zero
 - d) digital
- 7) Data loggers are used _____.
 - a) to store data
 - b) to process data
 - c) to manipulate data
 - d) none of above
- 8) Wave analyzers are used in the frequency range of _____.
 - a) VHF
 - b) UHF
 - c) lower RF
 - d) higher RF

- 9)** In FFT Spectrum Analyzer, FFT stands for _____.
- a) Frequency Fourier Transform
 - b) Fast Fourier Transmission
 - c) Frequency Fourier Transmission
 - d) Fast Fourier Transform
- 10)** In liquid crystal displays, the liquid crystal exhibits properties of _____.
- a) Liquid
 - b) Solids
 - c) Gases
 - d) Both (a) and (b)

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve any two. 08**
- a) Draw the block diagram of function generator and explain method of producing sine wave.
 - b) Explain basic working principle of digital voltmeter.
 - c) Explain the various types of systematic errors encountered in measurements.
- Q.3 Solve any two 12**
- a) Explain operation of data generator with suitable block diagram.
 - b) With suitable diagram explain LCD display. Compare LED and LCD display.
 - c) What is static error? Explain different types of static errors.

Section – II

- Q.4 Solve any two. 08**
- a) Draw the Quality Loop and label all the segments.
 - b) Explain operation of basic single channel DAS with suitable block diagram.
 - c) Describe operation of Logic Analyzer with suitable block diagram.
- Q.5 Solve any two 12**
- a) What is meant by Total Quality Management? What are the basic principles? Explain the underlying steps to Total Quality Management.
 - b) What is DAS? Explain working of multichannel DAS with suitable block diagram.
 - c) Explain with help of suitable block diagram the working of FET spectrum analyzer.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) A single channel data system consists of a signal conditioner, A/D converter and a buffer.
 - a) True
 - b) False
- 2) In single channel data acquisition system, the output of the buffer circuitry is _____.
 - a) analog
 - b) mixed
 - c) zero
 - d) digital
- 3) Data loggers are used _____.
 - a) to store data
 - b) to process data
 - c) to manipulate data
 - d) none of above
- 4) Wave analyzers are used in the frequency range of _____.
 - a) VHF
 - b) UHF
 - c) lower RF
 - d) higher RF
- 5) In FFT Spectrum Analyzer, FFT stands for _____.
 - a) Frequency Fourier Transform
 - b) Fast Fourier Transmission
 - c) Frequency Fourier Transmission
 - d) Fast Fourier Transform
- 6) In liquid crystal displays, the liquid crystal exhibits properties of _____.
 - a) Liquid
 - b) Solids
 - c) Gases
 - d) Both (a) and (b)
- 7) In 7 segment display, how many LEDs are used?
 - a) 8
 - b) 7
 - c) 10
 - d) 9
- 8) Error is expressed as _____.
 - a) absolute error
 - b) relative error
 - c) % error
 - d) % accuracy

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Electronic Instrumentation (BTN04802)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve any two. 08**
- a) Draw the block diagram of function generator and explain method of producing sine wave.
 - b) Explain basic working principle of digital voltmeter.
 - c) Explain the various types of systematic errors encountered in measurements.
- Q.3 Solve any two 12**
- a) Explain operation of data generator with suitable block diagram.
 - b) With suitable diagram explain LCD display. Compare LED and LCD display.
 - c) What is static error? Explain different types of static errors.

Section – II

- Q.4 Solve any two. 08**
- a) Draw the Quality Loop and label all the segments.
 - b) Explain operation of basic single channel DAS with suitable block diagram.
 - c) Describe operation of Logic Analyzer with suitable block diagram.
- Q.5 Solve any two 12**
- a) What is meant by Total Quality Management? What are the basic principles? Explain the underlying steps to Total Quality Management.
 - b) What is DAS? Explain working of multichannel DAS with suitable block diagram.
 - c) Explain with help of suitable block diagram the working of FET spectrum analyzer.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is the primary focus of cyber security?

a) Protecting physical assets	b) Protecting digital assets
c) Enhancing network speed	d) Promoting online anonymity
- 2) Which group of hackers typically aims to exploit vulnerabilities for personal gain?

a) White-hats	b) Black-hats
c) Grey-hats	d) Blue-hats
- 3) What is the main purpose of phishing attacks?

a) Stealing physical belongings	b) Extracting sensitive information
c) Distributing malware	d) Disrupting network connectivity
- 4) What term describes the process of analyzing suspicious emails to identify phishing attempts?

a) Email filtering	b) Email authentication
c) Email tracing	d) Email forensics
- 5) Which type of malware disguises itself as legitimate software?

a) Virus	b) Worm
c) Trojan	d) Spyware
- 6) What is the function of a firewall in network security?

a) Encrypting data transmissions	b) Blocking unauthorized access
c) Analyzing network traffic	d) Enhancing network speed
- 7) What is the primary goal of attacking cloud computing systems?
 - a) Extracting sensitive data
 - b) Disrupting online services
 - c) Modifying network configurations
 - d) Exploiting hardware vulnerabilities
- 8) What technology is commonly used to secure wireless networks?

a) MAC filtering	b) IP addressing
c) Port forwarding	d) Subnet masking

- 9)** Which cryptographic technique involves converting plaintext into ciphertext?
- a) Decryption
 - b) Hashing
 - c) Salting
 - d) Encryption
- 10)** What is the purpose of salting in cryptography?
- a) Enhancing encryption speed
 - b) Increasing decryption complexity
 - c) Strengthening password security
 - d) Accelerating hash computation

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any five.** **20**
- a) Explain the difference between black-hat and white-hat hackers.
 - b) Describe the methodology used by black-hat attackers.
 - c) How can individuals protect themselves from phishing attacks?
 - d) Discuss the types of malware and methods for defense against them.
 - e) Analyze a phishing email and identify its characteristics.
 - f) Explain the importance of encryption in cyber security and describe common encryption techniques used to secure data.

Section – II

- Q.3 Attempt any five.** **20**
- a) Outline the basics of network design and discuss how networks can be attacked.
 - b) Explain the concept of firewall setup and its importance in network security with reference to a case study.
 - c) Describe the process of attacking and defending cloud computing.
 - d) Discuss the standards and security measures involved in setting up a wireless network.
 - e) Analyze the importance of encryption and decryption in cryptography.
 - f) Explain the concept of network tapping and its implications for network security.

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is the function of a firewall in network security?
 - a) Encrypting data transmissions
 - b) Blocking unauthorized access
 - c) Analyzing network traffic
 - d) Enhancing network speed
- 2) What is the primary goal of attacking cloud computing systems?
 - a) Extracting sensitive data
 - b) Disrupting online services
 - c) Modifying network configurations
 - d) Exploiting hardware vulnerabilities
- 3) What technology is commonly used to secure wireless networks?
 - a) MAC filtering
 - b) IP addressing
 - c) Port forwarding
 - d) Subnet masking
- 4) Which cryptographic technique involves converting plaintext into ciphertext?
 - a) Decryption
 - b) Hashing
 - c) Salting
 - d) Encryption
- 5) What is the purpose of salting in cryptography?
 - a) Enhancing encryption speed
 - b) Increasing decryption complexity
 - c) Strengthening password security
 - d) Accelerating hash computation
- 6) What is the primary focus of cyber security?
 - a) Protecting physical assets
 - b) Protecting digital assets
 - c) Enhancing network speed
 - d) Promoting online anonymity
- 7) Which group of hackers typically aims to exploit vulnerabilities for personal gain?
 - a) White-hats
 - b) Black-hats
 - c) Grey-hats
 - d) Blue-hats
- 8) What is the main purpose of phishing attacks?
 - a) Stealing physical belongings
 - b) Extracting sensitive information
 - c) Distributing malware
 - d) Disrupting network connectivity

- 9)** What term describes the process of analyzing suspicious emails to identify phishing attempts?
- | | |
|--------------------|-------------------------|
| a) Email filtering | b) Email authentication |
| c) Email tracing | d) Email forensics |
- 10)** Which type of malware disguises itself as legitimate software?
- | | |
|-----------|------------|
| a) Virus | b) Worm |
| c) Trojan | d) Spyware |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any five. 20

- Explain the difference between black-hat and white-hat hackers.
- Describe the methodology used by black-hat attackers.
- How can individuals protect themselves from phishing attacks?
- Discuss the types of malware and methods for defense against them.
- Analyze a phishing email and identify its characteristics.
- Explain the importance of encryption in cyber security and describe common encryption techniques used to secure data.

Section – II

Q.3 Attempt any five. 20

- Outline the basics of network design and discuss how networks can be attacked.
- Explain the concept of firewall setup and its importance in network security with reference to a case study.
- Describe the process of attacking and defending cloud computing.
- Discuss the standards and security measures involved in setting up a wireless network.
- Analyze the importance of encryption and decryption in cryptography.
- Explain the concept of network tapping and its implications for network security.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which cryptographic technique involves converting plaintext into ciphertext?
 - a) Decryption
 - b) Hashing
 - c) Salting
 - d) Encryption
- 2) What is the purpose of salting in cryptography?
 - a) Enhancing encryption speed
 - b) Increasing decryption complexity
 - c) Strengthening password security
 - d) Accelerating hash computation
- 3) What is the primary focus of cyber security?
 - a) Protecting physical assets
 - b) Protecting digital assets
 - c) Enhancing network speed
 - d) Promoting online anonymity
- 4) Which group of hackers typically aims to exploit vulnerabilities for personal gain?
 - a) White-hats
 - b) Black-hats
 - c) Grey-hats
 - d) Blue-hats
- 5) What is the main purpose of phishing attacks?
 - a) Stealing physical belongings
 - b) Extracting sensitive information
 - c) Distributing malware
 - d) Disrupting network connectivity
- 6) What term describes the process of analyzing suspicious emails to identify phishing attempts?
 - a) Email filtering
 - b) Email authentication
 - c) Email tracing
 - d) Email forensics
- 7) Which type of malware disguises itself as legitimate software?
 - a) Virus
 - b) Worm
 - c) Trojan
 - d) Spyware
- 8) What is the function of a firewall in network security?
 - a) Encrypting data transmissions
 - b) Blocking unauthorized access
 - c) Analyzing network traffic
 - d) Enhancing network speed

- 9)** What is the primary goal of attacking cloud computing systems?
- a) Extracting sensitive data
 - b) Disrupting online services
 - c) Modifying network configurations
 - d) Exploiting hardware vulnerabilities
- 10)** What technology is commonly used to secure wireless networks?
- a) MAC filtering
 - b) IP addressing
 - c) Port forwarding
 - d) Subnet masking

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any five.** **20**
- a) Explain the difference between black-hat and white-hat hackers.
 - b) Describe the methodology used by black-hat attackers.
 - c) How can individuals protect themselves from phishing attacks?
 - d) Discuss the types of malware and methods for defense against them.
 - e) Analyze a phishing email and identify its characteristics.
 - f) Explain the importance of encryption in cyber security and describe common encryption techniques used to secure data.

Section – II

- Q.3 Attempt any five.** **20**
- a) Outline the basics of network design and discuss how networks can be attacked.
 - b) Explain the concept of firewall setup and its importance in network security with reference to a case study.
 - c) Describe the process of attacking and defending cloud computing.
 - d) Discuss the standards and security measures involved in setting up a wireless network.
 - e) Analyze the importance of encryption and decryption in cryptography.
 - f) Explain the concept of network tapping and its implications for network security.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) What is the main purpose of phishing attacks?
a) Stealing physical belongings b) Extracting sensitive information
c) Distributing malware d) Disrupting network connectivity
- 2) What term describes the process of analyzing suspicious emails to identify phishing attempts?
a) Email filtering b) Email authentication
c) Email tracing d) Email forensics
- 3) Which type of malware disguises itself as legitimate software?
a) Virus b) Worm
c) Trojan d) Spyware
- 4) What is the function of a firewall in network security?
a) Encrypting data transmissions b) Blocking unauthorized access
c) Analyzing network traffic d) Enhancing network speed
- 5) What is the primary goal of attacking cloud computing systems?
a) Extracting sensitive data
b) Disrupting online services
c) Modifying network configurations
d) Exploiting hardware vulnerabilities
- 6) What technology is commonly used to secure wireless networks?
a) MAC filtering b) IP addressing
c) Port forwarding d) Subnet masking
- 7) Which cryptographic technique involves converting plaintext into ciphertext?
a) Decryption b) Hashing
c) Salting d) Encryption

- 8)** What is the purpose of salting in cryptography?
- a) Enhancing encryption speed
 - b) Increasing decryption complexity
 - c) Strengthening password security
 - d) Accelerating hash computation
- 9)** What is the primary focus of cyber security?
- a) Protecting physical assets
 - b) Protecting digital assets
 - c) Enhancing network speed
 - d) Promoting online anonymity
- 10)** Which group of hackers typically aims to exploit vulnerabilities for personal gain?
- a) White-hats
 - b) Black-hats
 - c) Grey-hats
 - d) Blue-hats

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Cyber Security (BTN04804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any five. 20**
- a) Explain the difference between black-hat and white-hat hackers.
 - b) Describe the methodology used by black-hat attackers.
 - c) How can individuals protect themselves from phishing attacks?
 - d) Discuss the types of malware and methods for defense against them.
 - e) Analyze a phishing email and identify its characteristics.
 - f) Explain the importance of encryption in cyber security and describe common encryption techniques used to secure data.

Section – II

- Q.3 Attempt any five. 20**
- a) Outline the basics of network design and discuss how networks can be attacked.
 - b) Explain the concept of firewall setup and its importance in network security with reference to a case study.
 - c) Describe the process of attacking and defending cloud computing.
 - d) Discuss the standards and security measures involved in setting up a wireless network.
 - e) Analyze the importance of encryption and decryption in cryptography.
 - f) Explain the concept of network tapping and its implications for network security.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which one of the following also called 'rat race'?
 - a) E plane tee
 - b) H plane tee
 - c) Magic tee
 - d) Hybrid ring
- 2) Radar principle is used in _____.
 - a) detection of aircraft
 - b) burglar alarms
 - c) garage door openers
 - d) all of the above
- 3) GaAs FET is preferred to _____.
 - a) lower frequency
 - b) higher frequency
 - c) both a and b
 - d) none of above
- 4) Which of the following is not used as a microwave mixer or detector?
 - a) PIN diode
 - b) Crystal diode
 - c) Schottky barrier diode
 - d) Backward diode
- 5) The speed at which axial electric field due to signal advances in a TWT is equal to _____.
 - a) speed of light
 - b) (speed of light) (helix pitch helix circumference)
 - c) (speed of light) (helix pitch) (helix circumference)
 - d) (speed of light) (helix circumference helix pitch)
- 6) If r_v is reflection coefficient and VSWR is voltage standing wave ratio, then _____.
 - a) $\rho_v = \frac{VSWR - 1}{VSWR + 1}$
 - b) $|\rho_v| = \frac{VSWR - 1}{VSWR + 1}$
 - c) $\rho_v = \frac{VSWR + 1}{VSWR - 1}$
 - d) $|\rho_v| = \frac{VSWR + 1}{VSWR - 1}$

- 7) The different access methods which permit many satellite users to operate in parallel through a single transponder without interfering with each other as _____.
- a) Frequency Division Multiple Access (FDMA)
 - b) Time Division Multiple Access (TDMA)
 - c) Code Division Multiple Access (CDMA)
 - d) All of the above
- 8) A satellite link uses different frequencies for receiving and transmitting in order to _____.
- a) avoid interference from terrestrial microwave links
 - b) avoid interference between its powerful transmitted signal and weak incoming signal
 - c) minimize free-space losses
 - d) maximize antenna gain
- 9) Geosynchronous communication satellites travel around the earth in circular orbits with a forward speed of about _____ km/h.
- a) 11200
 - b) 36000
 - c) 0
 - d) 22800
- 10) In satellite communication, highly directional antennas are used to _____.
- a) direct the spot beam to a particular region of space on Earth
 - b) strengthen the beam to overcome the cosmic noise
 - c) make corrections in change of polarization of the beam
 - d) select a particular channel in transmission and reception
- 11) Low-orbit satellites are not used for communications because they _____.
- a) produce sonic booms
 - b) do not provide 24 hour/ day contact to the users on Earth
 - c) heat up and melt
 - d) none
- 12) The traffic-handling capacity of an Earth station on the uplink depends on _____.
- a) its EIRP
 - b) satellite antenna gain
 - c) noise associated with the satellite
 - d) all of the above
- 13) The angle between incident ray & normal to the plane is _____.
- a) Angle of reflection
 - b) Angle of Incident
 - c) Angle of coefficient
 - d) None of these
- 14) In second generation, wavelength of multimode fiber is _____.
- a) 1310 nm
 - b) 850 nm
 - c) 1420 nm
 - d) 1550 nm

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Two** **12**
- a) Derive Hull cut off voltage equation for a magnetron.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt any Four** **16**
- a) What are the advantages of microwave frequencies over low frequency?
 - b) Explain the function of circulator.
 - c) Derive the S matrix for H plane tee.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt any Two** **12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt any Four** **16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance.
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A satellite link uses different frequencies for receiving and transmitting in order to _____.
 - a) avoid interference from terrestrial microwave links
 - b) avoid interference between its powerful transmitted signal and weak incoming signal
 - c) minimize free-space losses
 - d) maximize antenna gain
- 2) Geosynchronous communication satellites travel around the earth in circular orbits with a forward speed of about _____ km/h.
 - a) 11200
 - b) 36000
 - c) 0
 - d) 22800
- 3) In satellite communication, highly directional antennas are used to _____.
 - a) direct the spot beam to a particular region of space on Earth
 - b) strengthen the beam to overcome the cosmic noise
 - c) make corrections in change of polarization of the beam
 - d) select a particular channel in transmission and reception
- 4) Low-orbit satellites are not used for communications because they _____.
 - a) produce sonic booms
 - b) do not provide 24 hour/ day contact to the users on Earth
 - c) heat up and melt
 - d) none
- 5) The traffic-handling capacity of an Earth station on the uplink depends on _____.
 - a) its EIRP
 - b) satellite antenna gain
 - c) noise associated with the satellite
 - d) all of the above
- 6) The angle between incident ray & normal to the plane is _____.
 - a) Angle of reflection
 - b) Angle of Incident
 - c) Angle of coefficient
 - d) None of these

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING

Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Two** **12**
- a) Derive Hull cut off voltage equation for a magnetron.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt any Four** **16**
- a) What are the advantages of microwave frequencies over low frequency?
 - b) Explain the function of circulator.
 - c) Derive the S matrix for H plane tee.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt any Two** **12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt any Four** **16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance.
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Low-orbit satellites are not used for communications because they _____.
 - a) produce sonic booms
 - b) do not provide 24 hour/ day contact to the users on Earth
 - c) heat up and melt
 - d) none
- 2) The traffic-handling capacity of an Earth station on the uplink depends on _____.
 - a) its EIRP
 - b) satellite antenna gain
 - c) noise associated with the satellite
 - d) all of the above
- 3) The angle between incident ray & normal to the plane is _____.
 - a) Angle of reflection
 - b) Angle of Incident
 - c) Angle of coefficient
 - d) None of these
- 4) In second generation, wavelength of multimode fiber is _____.
 - a) 1310 nm
 - b) 850 nm
 - c) 1420 nm
 - d) 1550 nm
- 5) Which one of the following also called 'rat race'?
 - a) E plane tee
 - b) H plane tee
 - c) Magic tee
 - d) Hybrid ring
- 6) Radar principle is used in _____.
 - a) detection of aircraft
 - b) burglar alarms
 - c) garage door openers
 - d) all of the above
- 7) GaAs FET is preferred to _____.
 - a) lower frequency
 - b) higher frequency
 - c) both a and b
 - d) none of above
- 8) Which of the following is not used as a microwave mixer or detector?
 - a) PIN diode
 - b) Crystal diode
 - c) Schottky barrier diode
 - d) Backward diode

- 9) The speed at which axial electric field due to signal advances in a TWT is equal to _____.
 a) speed of light
 b) (speed of light) (helix pitch helix circumference)
 c) (speed of light) (helix pitch) (helix circumference)
 d) (speed of light) (helix circumference helix pitch)
- 10) If r_v is reflection coefficient and VSWR is voltage standing wave ratio, then _____.
 a) $\rho_v = \frac{VSWR - 1}{VSWR + 1}$
 b) $|\rho_v| = \frac{VSWR - 1}{VSWR + 1}$
 c) $\rho_v = \frac{VSWR + 1}{VSWR - 1}$
 d) $|\rho_v| = \frac{VSWR + 1}{VSWR - 1}$
- 11) The different access methods which permit many satellite users to operate in parallel through a single transponder without interfering with each other as _____.
 a) Frequency Division Multiple Access (FDMA)
 b) Time Division Multiple Access (TDMA)
 c) Code Division Multiple Access (CDMA)
 d) All of the above
- 12) A satellite link uses different frequencies for receiving and transmitting in order to _____.
 a) avoid interference from terrestrial microwave links
 b) avoid interference between its powerful transmitted signal and weak incoming signal
 c) minimize free-space losses
 d) maximize antenna gain
- 13) Geosynchronous communication satellites travel around the earth in circular orbits with a forward speed of about _____ km/h.
 a) 11200
 b) 36000
 c) 0
 d) 22800
- 14) In satellite communication, highly directional antennas are used to _____.
 a) direct the spot beam to a particular region of space on Earth
 b) strengthen the beam to overcome the cosmic noise
 c) make corrections in change of polarization of the beam
 d) select a particular channel in transmission and reception

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Two** **12**
- a) Derive Hull cut off voltage equation for a magnetron.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt any Four** **16**
- a) What are the advantages of microwave frequencies over low frequency?
 - b) Explain the function of circulator.
 - c) Derive the S matrix for H plane tee.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt any Two** **12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt any Four** **16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance.
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING**

Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) If r_v is reflection coefficient and VSWR is voltage standing wave ratio, then _____.
- a) $\rho_v = \frac{VSWR - 1}{VSWR + 1}$ b) $|\rho_v| = \frac{VSWR - 1}{VSWR + 1}$
- c) $\rho_v = \frac{VSWR + 1}{VSWR - 1}$ d) $|\rho_v| = \frac{VSWR + 1}{VSWR - 1}$
- 2) The different access methods which permit many satellite users to operate in parallel through a single transponder without interfering with each other as _____.
- a) Frequency Division Multiple Access (FDMA)
b) Time Division Multiple Access (TDMA)
c) Code Division Multiple Access (CDMA)
d) All of the above
- 3) A satellite link uses different frequencies for receiving and transmitting in order to _____.
- a) avoid interference from terrestrial microwave links
b) avoid interference between its powerful transmitted signal and weak incoming signal
c) minimize free-space losses
d) maximize antenna gain
- 4) Geosynchronous communication satellites travel around the earth in circular orbits with a forward speed of about _____ km/h.
- a) 11200 b) 36000
c) 0 d) 22800
- 5) In satellite communication, highly directional antennas are used to _____.
- a) direct the spot beam to a particular region of space on Earth
b) strengthen the beam to overcome the cosmic noise
c) make corrections in change of polarization of the beam
d) select a particular channel in transmission and reception

- 6) Low-orbit satellites are not used for communications because they _____.
a) produce sonic booms
b) do not provide 24 hour/ day contact to the users on Earth
c) heat up and melt
d) none
- 7) The traffic-handling capacity of an Earth station on the uplink depends on _____.
a) its EIRP
b) satellite antenna gain
c) noise associated with the satellite
d) all of the above
- 8) The angle between incident ray & normal to the plane is _____.
a) Angle of reflection
b) Angle of Incident
c) Angle of coefficient
d) None of these
- 9) In second generation, wavelength of multimode fiber is _____.
a) 1310 nm
b) 850 nm
c) 1420 nm
d) 1550 nm
- 10) Which one of the following also called 'rat race'?
a) E plane tee
b) H plane tee
c) Magic tee
d) Hybrid ring
- 11) Radar principle is used in _____.
a) detection of aircraft
b) burglar alarms
c) garage door openers
d) all of the above
- 12) GaAs FET is preferred to _____.
a) lower frequency
b) higher frequency
c) both a and b
d) none of above
- 13) Which of the following is not used as a microwave mixer or detector?
a) PIN diode
b) Crystal diode
c) Schottky barrier diode
d) Backward diode
- 14) The speed at which axial electric field due to signal advances in a TWT is equal to _____.
a) speed of light
b) (speed of light) (helix pitch helix circumference)
c) (speed of light) (helix pitch) (helix circumference)
d) (speed of light) (helix circumference helix pitch)

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Advanced Communication Engineering (197047801)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Two** **12**
- a) Derive Hull cut off voltage equation for a magnetron.
 - b) Describe in detail the principles of the following terms Gunn Effect, high field domain, two valley theory and three valley theory.
 - c) Derive the radar range equation. Write radar performance factors.
- Q.3 Attempt any Four** **16**
- a) What are the advantages of microwave frequencies over low frequency?
 - b) Explain the function of circulator.
 - c) Derive the S matrix for H plane tee.
 - d) Explain basic principle of radar system.
 - e) Compare CW Doppler radar and FM-CW radar.

Section – II

- Q.4 Attempt any Two** **12**
- a) Explain in detail Attitude and Orbit control system (AOCS) and power subsystem.
 - b) Draw the block diagram of earth station and explain in detail.
 - c) Explain construction and working of edge emitting double heterojunction LED.
- Q.5 Attempt any Four** **16**
- a) What is meant by geostationary satellite?
 - b) Explain in detail orbital effects in communication system performance.
 - c) Explain in detail launch and launch vehicles.
 - d) Comparison of single mode, multimode step index and graded index optical fiber.
 - e) Derive numerical aperture for step index fiber.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What causes reverberation?

a) Diffraction	b) Frequency
c) Reflection	d) Refraction
- 2) What is the complete audible range for a human ear?

a) 20 to 20,000 HZ	b) 30 to 30,000 HZ
c) 20 to 25,000 HZ	d) 60 to 60,000 HZ
- 3) Why is a picture frame projected twice on the screen?

a) To strengthen the image	b) To have good focusing
c) To eliminate flicker	d) To have good resolution
- 4) Aspect ratio for width to height for a TV picture frame is _____.

a) 1:1	b) 2:1
c) 4:3	d) 5:1
- 5) Nyquist's frequency of sampling is _____ times the highest frequency present in the base band signal.

a) 1	b) 2
c) 4	d) 8
- 6) About I and Q terms used in NTSC, Q stands for _____.

a) quality	b) quadrature
c) quantity	d) quantum
- 7) R-Y signal changes phase in PAL on alternate lines by _____.

a) 45 degree	b) 90 degree
c) 180 degree	d) 270 degree
- 8) Which type of system is the PA system in audio devices?

a) Electro-magnetic	b) Electro-dynamic
c) Electro-acoustic	d) Piezo-electric

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four of the following questions. 16

- Illustrate with neat diagram optical sound recording.
- If the velocity of sound at 0 degree Celsius is 332m/s, calculate
 - Velocity at 20°C
 - wavelength for sound of 400Hz at 20°C
- With a neat diagram discuss additive & subtractive colour theory.
- Give the comparison between Interlace scanning & Progressive scanning in detail.
- Discuss advantages of digital television.

Q.3 Attempt any Two of the following questions. 12

- Discuss with a neat block diagram generalized colour TV Transmitter.
- Discuss the terms acoustics, reverberation, absorption coefficient of sound.
- From the data calculate the Colour Subcarrier for Weighted parameters.

Colour	White	Yellow	Cyan	Green	Magenta	Red	Blue	Black
B-Y	0	-0.438	+0.148	-0.29	+0.29	-0.148	+0.4388	0
R-Y	0	+0.096	-0.614	-0.51	+0.517	+0.614	-0.096	0

Section – II

Q.4 Attempt any Four of the following questions. 16

- Discuss musical instrument digital interface (MIDI) and its role.
- Calculate audio file size, if audio is recorded a 5-minute CD-quality audio (at 16 bit depth) with a sample rate of 44.1 kHz.
- Discuss the MPEG audio encoder with suitable block diagram.
- Give the difference between lossless & lossy compression techniques.
- Compare headphones and headset.

Q.5 Attempt any Two of the following questions. 12

- Define virtual reality; also discuss its different forms & applications.
- Discuss bit allocation algorithm for MPEG-1 Layer 1 and Layer 2.
- Discuss different image data types and their file formats.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which type of system is the PA system in audio devices?
 - a) Electro-magnetic
 - b) Electro-dynamic
 - c) Electro-acoustic
 - d) Piezo-electric
- 2) In optical playback process, returning beam is reflected from the flat surface and represents the digit _____ & amp; there is only a little reflection from a pit, and it represents _____.
 - a) one, zero
 - b) zero, one
 - c) one, one
 - d) zero, zero
- 3) _____ is an audio file format.
 - a) mpeg-3
 - b) tiff
 - c) jpeg
 - d) gif
- 4) The MIDI standard specifies how many channels?
 - a) 16
 - b) 24
 - c) 32
 - d) 40
- 5) What is the full form of Hi - Fi?
 - a) Highest fidelity
 - b) High fidelity
 - c) Huge fidelity
 - d) High frequency
- 6) During Compression Audio and Video, each frame is divided into small grids, called picture elements or _____.
 - a) Pixels
 - b) Mega Pixels
 - c) Frame
 - d) Packets
- 7) What are the applications of Virtual Reality?
 - a) Education
 - b) Business
 - c) video game
 - d) All of above
- 8) What causes reverberation?
 - a) Diffraction
 - b) Frequency
 - c) Reflection
 - d) Refraction
- 9) What is the complete audible range for a human ear?
 - a) 20 to 20,000 HZ
 - b) 30 to 30,000 HZ
 - c) 20 to 25,000 HZ
 - d) 60 to 60,000 HZ

- 10)** Why is a picture frame projected twice on the screen?
a) To strengthen the image b) To have good focusing
c) To eliminate flicker d) To have good resolution
- 11)** Aspect ratio for width to height for a TV picture frame is _____.
a) 1:1 b) 2:1
c) 4:3 d) 5:1
- 12)** Nyquist's frequency of sampling is _____ times the highest frequency present in the base band signal.
a) 1 b) 2
c) 4 d) 8
- 13)** About I and Q terms used in NTSC, Q stands for _____.
a) quality b) quadrature
c) quantity d) quantum
- 14)** R-Y signal changes phase in PAL on alternate lines by _____.
a) 45 degree b) 90 degree
c) 180 degree d) 270 degree

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four of the following questions. 16

- Illustrate with neat diagram optical sound recording.
- If the velocity of sound at 0 degree Celsius is 332m/s, calculate
 - Velocity at 20°C
 - wavelength for sound of 400Hz at 20°C
- With a neat diagram discuss additive & subtractive colour theory.
- Give the comparison between Interlace scanning & Progressive scanning in detail.
- Discuss advantages of digital television.

Q.3 Attempt any Two of the following questions. 12

- Discuss with a neat block diagram generalized colour TV Transmitter.
- Discuss the terms acoustics, reverberation, absorption coefficient of sound.
- From the data calculate the Colour Subcarrier for Weighted parameters.

Colour	White	Yellow	Cyan	Green	Magenta	Red	Blue	Black
B-Y	0	-0.438	+0.148	-0.29	+0.29	-0.148	+0.4388	0
R-Y	0	+0.096	-0.614	-0.51	+0.517	+0.614	-0.096	0

Section – II

Q.4 Attempt any Four of the following questions. 16

- Discuss musical instrument digital interface (MIDI) and its role.
- Calculate audio file size, if audio is recorded a 5-minute CD-quality audio (at 16 bit depth) with a sample rate of 44.1 kHz.
- Discuss the MPEG audio encoder with suitable block diagram.
- Give the difference between lossless & lossy compression techniques.
- Compare headphones and headset.

Q.5 Attempt any Two of the following questions. 12

- Define virtual reality; also discuss its different forms & applications.
- Discuss bit allocation algorithm for MPEG-1 Layer 1 and Layer 2.
- Discuss different image data types and their file formats.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The MIDI standard specifies how many channels?

a) 16	b) 24
c) 32	d) 40
- 2) What is the full form of Hi - Fi?

a) Highest fidelity	b) High fidelity
c) Huge fidelity	d) High frequency
- 3) During Compression Audio and Video, each frame is divided into small grids, called picture elements or _____.

a) Pixels	b) Mega Pixels
c) Frame	d) Packets
- 4) What are the applications of Virtual Reality?

a) Education	b) Business
c) video game	d) All of above
- 5) What causes reverberation?

a) Diffraction	b) Frequency
c) Reflection	d) Refraction
- 6) What is the complete audible range for a human ear?

a) 20 to 20,000 HZ	b) 30 to 30,000 HZ
c) 20 to 25,000 HZ	d) 60 to 60,000 HZ
- 7) Why is a picture frame projected twice on the screen?

a) To strengthen the image	b) To have good focusing
c) To eliminate flicker	d) To have good resolution
- 8) Aspect ratio for width to height for a TV picture frame is _____.

a) 1:1	b) 2:1
c) 4:3	d) 5:1
- 9) Nyquist's frequency of sampling is _____ times the highest frequency present in the base band signal.

a) 1	b) 2
c) 4	d) 8

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four of the following questions. 16

- Illustrate with neat diagram optical sound recording.
- If the velocity of sound at 0 degree Celsius is 332m/s, calculate
 - Velocity at 20°C
 - wavelength for sound of 400Hz at 20°C
- With a neat diagram discuss additive & subtractive colour theory.
- Give the comparison between Interlace scanning & Progressive scanning in detail.
- Discuss advantages of digital television.

Q.3 Attempt any Two of the following questions. 12

- Discuss with a neat block diagram generalized colour TV Transmitter.
- Discuss the terms acoustics, reverberation, absorption coefficient of sound.
- From the data calculate the Colour Subcarrier for Weighted parameters.

Colour	White	Yellow	Cyan	Green	Magenta	Red	Blue	Black
B-Y	0	-0.438	+0.148	-0.29	+0.29	-0.148	+0.4388	0
R-Y	0	+0.096	-0.614	-0.51	+0.517	+0.614	-0.096	0

Section – II

Q.4 Attempt any Four of the following questions. 16

- Discuss musical instrument digital interface (MIDI) and its role.
- Calculate audio file size, if audio is recorded a 5-minute CD-quality audio (at 16 bit depth) with a sample rate of 44.1 kHz.
- Discuss the MPEG audio encoder with suitable block diagram.
- Give the difference between lossless & lossy compression techniques.
- Compare headphones and headset.

Q.5 Attempt any Two of the following questions. 12

- Define virtual reality; also discuss its different forms & applications.
- Discuss bit allocation algorithm for MPEG-1 Layer 1 and Layer 2.
- Discuss different image data types and their file formats.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Audio Video Systems (197047802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four of the following questions. 16

- Illustrate with neat diagram optical sound recording.
- If the velocity of sound at 0 degree Celsius is 332m/s, calculate
 - Velocity at 20°C
 - wavelength for sound of 400Hz at 20°C
- With a neat diagram discuss additive & subtractive colour theory.
- Give the comparison between Interlace scanning & Progressive scanning in detail.
- Discuss advantages of digital television.

Q.3 Attempt any Two of the following questions. 12

- Discuss with a neat block diagram generalized colour TV Transmitter.
- Discuss the terms acoustics, reverberation, absorption coefficient of sound.
- From the data calculate the Colour Subcarrier for Weighted parameters.

Colour	White	Yellow	Cyan	Green	Magenta	Red	Blue	Black
B-Y	0	-0.438	+0.148	-0.29	+0.29	-0.148	+0.4388	0
R-Y	0	+0.096	-0.614	-0.51	+0.517	+0.614	-0.096	0

Section – II

Q.4 Attempt any Four of the following questions. 16

- Discuss musical instrument digital interface (MIDI) and its role.
- Calculate audio file size, if audio is recorded a 5-minute CD-quality audio (at 16 bit depth) with a sample rate of 44.1 kHz.
- Discuss the MPEG audio encoder with suitable block diagram.
- Give the difference between lossless & lossy compression techniques.
- Compare headphones and headset.

Q.5 Attempt any Two of the following questions. 12

- Define virtual reality; also discuss its different forms & applications.
- Discuss bit allocation algorithm for MPEG-1 Layer 1 and Layer 2.
- Discuss different image data types and their file formats.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The PLC is used in _____.
 - a) machine tools
 - b) automated assembly equipment
 - c) moulding and extrusion machines
 - d) all of the above
- 2) Ladder logic programming consists primarily of _____.
 - a) virtual relay contacts and coils
 - b) logic gate symbols with connecting lines
 - c) function blocks with connecting lines
 - d) text-based code
 - e) Hieroglyphics
- 3) In PLC programming, a retentive function is one that _____.
 - a) defaults to the "on" state
 - b) comes last in the program
 - c) defaults to the "off" state
 - d) is not reset after a power cycle
- 4) The _____ of metals is a function of temperature and increases with increasing temperature.
 - a) Coefficient of material
 - b) Resistance
 - c) Conductivity
 - d) Kappa
- 5) Noise reduction techniques should be utilized to avoid interfering voltages that might be otherwise generated in the system.
 - a) True
 - b) False
- 6) The objective of process control is to keep key process operating parameters within narrow bounds of the _____.
 - a) Reference value
 - b) Spot
 - c) Pith
 - d) Inception point

- 7) The most popular language for PLCs is _____.
- a) Ladder diagram b) C++
c) OOP+ d) VHDL
- 8) Very often relays and valves are connected to very often relays and valves are connected to _____.
- a) Input modules b) Output modules
c) Any of these d) None of the above
- 9) PLCs that have a fixed amount of I/O capability built into the unit are known as PLCs that have a fixed amount of I/O capability built into the unit are known as _____.
- a) Rack PLCs b) Monolithic PLCs
c) Modular PLCs d) None of these
- 10) Voltage to current converter is also called as _____.
- a) Current series positive feedback amplifier
b) Voltage series negative feedback amplifier
c) Current series negative feedback amplifier
d) Voltage series positive feedback amplifier
- 11) Which of the following application uses voltage to current converter?
- a) Low voltage dc and ac voltmeter
b) Diode match finding
c) Light emitting diode
d) All of the mentioned
- 12) Which of the following is not of importance when a conveyor is designed?
- a) Type of industry where the conveyor is being used
b) Type of material being carried by the conveyor
c) Cost
d) Length of travel of the conveyor
- 13) What do you mean by 'Conveyor control'?
- a) Controlling the material flow, according to conveyor speed, to reduce power consumption
b) Controlling the conveyor speed, according to material flow, manually
c) Controlling the material flow, according to conveyor speed manually or using feedback drives
d) Controlling the conveyor speed, according to material flow to, reduce power consumption
- 14) Based on how binary information is entered or shifted out, shift registers are classified into _____ categories.
- a) 2 b) 3
c) 4 d) 5

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Draw and explain the ladder diagrams of basic gates, using two inputs.
 - b) State advantages of PLC's over hard-wired relays.
 - c) Compare between PC and PLC.
 - d) Explain Latching with suitable example.
 - e) Draw and explain delay ON and delay OFF timers in PLC.
- Q.3 Attempt any two of the following questions. 12**
- a) State & explain the shift register with ladder diagram.
 - b) What is Central heating system? Explain in detail.
 - c) Draw and explain applications of internal relay used in PLC.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- a) What is P controller? Explain with mathematical model.
 - b) Write short note on temperature sensors.
 - c) Compare between hydraulic actuation system, pneumatic actuators.
 - d) Explain the working of pressure sensor with suitable example.
 - e) Compare between PI & PD controller
- Q.5 Attempt any two of the following questions. 12**
- a) What is actuators? Explain the working of directional control valves in detail.
 - b) Compare between I to V, V to I converter for floating load and grounded load in detail.
 - c) Explain the advantages, disadvantages of PI, PD & PID controllers.

- 6) What do you mean by 'Conveyor control'?
- Controlling the material flow, according to conveyor speed, to reduce power consumption
 - Controlling the conveyor speed, according to material flow, manually
 - Controlling the material flow, according to conveyor speed manually or using feedback drives
 - Controlling the conveyor speed, according to material flow to, reduce power consumption
- 7) Based on how binary information is entered or shifted out, shift registers are classified into _____ categories.
- 2
 - 3
 - 4
 - 5
- 8) The PLC is used in _____.
- machine tools
 - automated assembly equipment
 - moulding and extrusion machines
 - all of the above
- 9) Ladder logic programming consists primarily of _____.
- virtual relay contacts and coils
 - logic gate symbols with connecting lines
 - function blocks with connecting lines
 - text-based code
 - Hieroglyphics
- 10) In PLC programming, a retentive function is one that _____.
- defaults to the "on" state
 - comes last in the program
 - defaults to the "off" state
 - is not reset after a power cycle
- 11) The _____ of metals is a function of temperature and increases with increasing temperature.
- Coefficient of material
 - Resistance
 - Conductivity
 - Kappa
- 12) Noise reduction techniques should be utilized to avoid interfering voltages that might be otherwise generated in the system.
- True
 - False
- 13) The objective of process control is to keep key process operating parameters within narrow bounds of the _____.
- Reference value
 - Spot
 - Pith
 - Inception point
- 14) The most popular language for PLCs is _____.
- Ladder diagram
 - C++
 - OOP+
 - VHDL

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Draw and explain the ladder diagrams of basic gates, using two inputs.
 - b) State advantages of PLC's over hard-wired relays.
 - c) Compare between PC and PLC.
 - d) Explain Latching with suitable example.
 - e) Draw and explain delay ON and delay OFF timers in PLC.
- Q.3 Attempt any two of the following questions. 12**
- a) State & explain the shift register with ladder diagram.
 - b) What is Central heating system? Explain in detail.
 - c) Draw and explain applications of internal relay used in PLC.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- a) What is P controller? Explain with mathematical model.
 - b) Write short note on temperature sensors.
 - c) Compare between hydraulic actuation system, pneumatic actuators.
 - d) Explain the working of pressure sensor with suitable example.
 - e) Compare between PI & PD controller
- Q.5 Attempt any two of the following questions. 12**
- a) What is actuators? Explain the working of directional control valves in detail.
 - b) Compare between I to V, V to I converter for floating load and grounded load in detail.
 - c) Explain the advantages, disadvantages of PI, PD & PID controllers.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following application uses voltage to current converter?
 - a) Low voltage dc and ac voltmeter
 - b) Diode match finding
 - c) Light emitting diode
 - d) All of the mentioned
- 2) Which of the following is not of importance when a conveyor is designed?
 - a) Type of industry where the conveyor is being used
 - b) Type of material being carried by the conveyor
 - c) Cost
 - d) Length of travel of the conveyor
- 3) What do you mean by 'Conveyor control'?
 - a) Controlling the material flow, according to conveyor speed, to reduce power consumption
 - b) Controlling the conveyor speed, according to material flow, manually
 - c) Controlling the material flow, according to conveyor speed manually or using feedback drives
 - d) Controlling the conveyor speed, according to material flow to, reduce power consumption
- 4) Based on how binary information is entered or shifted out, shift registers are classified into _____ categories.
 - a) 2
 - b) 3
 - c) 4
 - d) 5
- 5) The PLC is used in _____.
 - a) machine tools
 - b) automated assembly equipment
 - c) moulding and extrusion machines
 - d) all of the above

- 6) Ladder logic programming consists primarily of _____.
a) virtual relay contacts and coils
b) logic gate symbols with connecting lines
c) function blocks with connecting lines
d) text-based code
e) Hieroglyphics
- 7) In PLC programming, a retentive function is one that _____.
a) defaults to the "on" state
b) comes last in the program
c) defaults to the "off" state
d) is not reset after a power cycle
- 8) The _____ of metals is a function of temperature and increases with increasing temperature.
a) Coefficient of material b) Resistance
c) Conductivity d) Kappa
- 9) Noise reduction techniques should be utilized to avoid interfering voltages that might be otherwise generated in the system.
a) True b) False
- 10) The objective of process control is to keep key process operating parameters within narrow bounds of the _____.
a) Reference value b) Spot
c) Pith d) Inception point
- 11) The most popular language for PLCs is _____.
a) Ladder diagram b) C++
c) OOP+ d) VHDL
- 12) Very often relays and valves are connected to very often relays and valves are connected to _____.
a) Input modules b) Output modules
c) Any of these d) None of the above
- 13) PLCs that have a fixed amount of I/O capability built into the unit are known as PLCs that have a fixed amount of I/O capability built into the unit are known as _____.
a) Rack PLCs b) Monolithic PLCs
c) Modular PLCs d) None of these
- 14) Voltage to current converter is also called as _____.
a) Current series positive feedback amplifier
b) Voltage series negative feedback amplifier
c) Current series negative feedback amplifier
d) Voltage series positive feedback amplifier

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Draw and explain the ladder diagrams of basic gates, using two inputs.
 - b) State advantages of PLC's over hard-wired relays.
 - c) Compare between PC and PLC.
 - d) Explain Latching with suitable example.
 - e) Draw and explain delay ON and delay OFF timers in PLC.
- Q.3 Attempt any two of the following questions. 12**
- a) State & explain the shift register with ladder diagram.
 - b) What is Central heating system? Explain in detail.
 - c) Draw and explain applications of internal relay used in PLC.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- a) What is P controller? Explain with mathematical model.
 - b) Write short note on temperature sensors.
 - c) Compare between hydraulic actuation system, pneumatic actuators.
 - d) Explain the working of pressure sensor with suitable example.
 - e) Compare between PI & PD controller
- Q.5 Attempt any two of the following questions. 12**
- a) What is actuators? Explain the working of directional control valves in detail.
 - b) Compare between I to V, V to I converter for floating load and grounded load in detail.
 - c) Explain the advantages, disadvantages of PI, PD & PID controllers.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The objective of process control is to keep key process operating parameters within narrow bounds of the _____.
 a) Reference value b) Spot
 c) Pith d) Inception point
- 2) The most popular language for PLCs is _____.
 a) Ladder diagram b) C++
 c) OOP+ d) VHDL
- 3) Very often relays and valves are connected to very often relays and valves are connected to _____.
 a) Input modules b) Output modules
 c) Any of these d) None of the above
- 4) PLCs that have a fixed amount of I/O capability built into the unit are known as PLCs that have a fixed amount of I/O capability built into the unit are known as _____.
 a) Rack PLCs b) Monolithic PLCs
 c) Modular PLCs d) None of these
- 5) Voltage to current converter is also called as _____.
 a) Current series positive feedback amplifier
 b) Voltage series negative feedback amplifier
 c) Current series negative feedback amplifier
 d) Voltage series positive feedback amplifier
- 6) Which of the following application uses voltage to current converter?
 a) Low voltage dc and ac voltmeter
 b) Diode match finding
 c) Light emitting diode
 d) All of the mentioned

- 7) Which of the following is not of importance when a conveyor is designed?
- a) Type of industry where the conveyor is being used
 - b) Type of material being carried by the conveyor
 - c) Cost
 - d) Length of travel of the conveyor
- 8) What do you mean by 'Conveyor control'?
- a) Controlling the material flow, according to conveyor speed, to reduce power consumption
 - b) Controlling the conveyor speed, according to material flow, manually
 - c) Controlling the material flow, according to conveyor speed manually or using feedback drives
 - d) Controlling the conveyor speed, according to material flow to, reduce power consumption
- 9) Based on how binary information is entered or shifted out, shift registers are classified into _____ categories.
- a) 2
 - b) 3
 - c) 4
 - d) 5
- 10) The PLC is used in _____.
- a) machine tools
 - b) automated assembly equipment
 - c) moulding and extrusion machines
 - d) all of the above
- 11) Ladder logic programming consists primarily of _____.
- a) virtual relay contacts and coils
 - b) logic gate symbols with connecting lines
 - c) function blocks with connecting lines
 - d) text-based code
 - e) Hieroglyphics
- 12) In PLC programming, a retentive function is one that _____.
- a) defaults to the "on" state
 - b) comes last in the program
 - c) defaults to the "off" state
 - d) is not reset after a power cycle
- 13) The _____ of metals is a function of temperature and increases with increasing temperature.
- a) Coefficient of material
 - b) Resistance
 - c) Conductivity
 - d) Kappa
- 14) Noise reduction techniques should be utilized to avoid interfering voltages that might be otherwise generated in the system.
- a) True
 - b) False

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
PLC and Industrial Controllers (197047805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Draw and explain the ladder diagrams of basic gates, using two inputs.
 - b) State advantages of PLC's over hard-wired relays.
 - c) Compare between PC and PLC.
 - d) Explain Latching with suitable example.
 - e) Draw and explain delay ON and delay OFF timers in PLC.
- Q.3 Attempt any two of the following questions. 12**
- a) State & explain the shift register with ladder diagram.
 - b) What is Central heating system? Explain in detail.
 - c) Draw and explain applications of internal relay used in PLC.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- a) What is P controller? Explain with mathematical model.
 - b) Write short note on temperature sensors.
 - c) Compare between hydraulic actuation system, pneumatic actuators.
 - d) Explain the working of pressure sensor with suitable example.
 - e) Compare between PI & PD controller
- Q.5 Attempt any two of the following questions. 12**
- a) What is actuators? Explain the working of directional control valves in detail.
 - b) Compare between I to V, V to I converter for floating load and grounded load in detail.
 - c) Explain the advantages, disadvantages of PI, PD & PID controllers.

Seat No.	
----------	--

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Distance functions are highly sensitive to _____.
 a) data distribution b) dimensionality
 c) data type d) all of these
- 2) Two types of collaborative filtering are _____ & _____ based.
 a) person, people b) attribute, class
 c) supervised, unsupervised d) none of these
- 3) Which of below is not an advantage of data integration?
 a) faster query processing b) dependency
 c) complex query processing d) high volume data processing
- 4) Data points that are inconsistent with the remaining data distribution are often _____.
 a) scalable b) noisy
 c) clean d) mean
- 5) Which of below is disadvantage of star schema?
 a) unoptimized b) more joins between the tables
 c) more storage space d) all of these
- 6) A bank loan officer wants to decide a particular customer applying for a loan is risky or safe. Which model he shall use?
 a) decision tree b) Naive Bayes classifier
 c) artificial neural network d) all of these
- 7) The two tiers of data warehouse architectures are _____.
 a) client, DW server b) client, metadata
 c) DW server, metadata d) metadata, DW server

- 8) Interquartile range is the _____ quartile subtracted from the _____ quartile.
- a) second, third
 - b) third, forth
 - c) first, forth
 - d) first, third
- 9) ML is the study of computer algorithms that _____.
- a) improve automatically through experience
 - b) learns from explicit rules
 - c) finds obvious relations in data
 - d) all of these
- 10) If $A = \text{Entropy}(2+, 3-)$ and $B = \text{Entropy}(3-, 2+)$, then _____.
- a) $A = B$
 - b) $A > B$
 - c) $B > A$
 - d) insufficient data
- 11) Take the odd man out: Lp norm, Jaccord index, dynamic time warping, window-based methods
- a) Lp norm
 - b) Jaccord index
 - c) dynamic time warping
 - d) window based methods
- 12) Which of below is a dimension reduction technique?
- a) axis rotation
 - b) PCA
 - c) SVD
 - d) all of these
- 13) Which of below is quantitative data?
- a) pin code
 - b) age
 - c) address
 - d) all of these
- 14) If data set is completely homogeneous, then _____.
- a) all data has same class
 - b) impurity is zero
 - c) entropy is zero
 - d) all of these

Seat No.	
----------	--

Set

P

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two

12

- a) Forecasting gold rates can help investors to decide when to buy (or sell) the commodity. Gold rate depends upon five quantitative features - price of other precious metal, price of crude oil, stock exchange performance, bonds price, and currency exchange rate. Past data of 10,000 records containing five features and gold price is available. Describe a data analytic system which can predict gold rate given the features. Give detailed steps of the system designed.
- b) Data set given: 10, 8, 20, 15, 17. Normalize it to {0 to 1} and {1 to 4} using min-max normalization.
- c) Bank ABC wish to buy machine learning based software to decide whether to grant a business loan to customer or not. Bank already has complete data of past 20,000 records which consists of the features/attributes and correct outcome for each record. Design a scheme to check the performance of the software to be bought based on various performance parameters. Also evaluate the Type I and Type II errors associated.

Q.3 Solve any four.

16

- a) With suitable example compare different types of feature subset selection.
- b) With suitable example compare Euclidean distance and Manhattan distance.
- c) With suitable example show how to calculate Jaccard Index for binary set data.
- d) With two real life examples, describe how data mining is useful for business applications.
- e) With suitable examples compare – structured, semi-structured and unstructured data.

Section – II

Q.4 Solve any two.

12

- a) Given below training data, using linear regression analysis method -
- Predict price of the house with age 28 years
 - Calculate residual error for houses with age 20 years

Age of House (x)	Price of House (\$, 000) (y)
10	350
15	250
20	300
20	240
25	225

- b) With suitable example describe how a Naïve Bayes classifier can be used for prediction of class of a data record.
- c) Compare OLTP and OLAP

Q.5 Solve any four.

16

- Compare supervised learning and unsupervised learning
- What are advantages and disadvantages of K Means Clustering?
- Describe any four data warehouse access tools.
- With suitable example, explain Snowflake schema.
- Compare linear regression and classification with suitable examples.

Seat No.	
----------	--

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Interquartile range is the _____ quartile subtracted from the _____ quartile.
 - a) second, third
 - b) third, forth
 - c) first, forth
 - d) first, third
- 2) ML is the study of computer algorithms that _____.
 - a) improve automatically through experience
 - b) learns from explicit rules
 - c) finds obvious relations in data
 - d) all of these
- 3) If $A = \text{Entropy}(2+, 3-)$ and $B = \text{Entropy}(3-, 2+)$, then _____.
 - a) $A = B$
 - b) $A > B$
 - c) $B > A$
 - d) insufficient data
- 4) Take the odd man out: Lp norm, Jaccord index, dynamic time warping, window-based methods
 - a) Lp norm
 - b) Jaccord index
 - c) dynamic time warping
 - d) window based methods
- 5) Which of below is a dimension reduction technique?
 - a) axis rotation
 - b) PCA
 - c) SVD
 - d) all of these
- 6) Which of below is quantitative data?
 - a) pin code
 - b) age
 - c) address
 - d) all of these
- 7) If data set is completely homogeneous, then _____.
 - a) all data has same class
 - b) impurity is zero
 - c) entropy is zero
 - d) all of these
- 8) Distance functions are highly sensitive to _____.
 - a) data distribution
 - b) dimensionality
 - c) data type
 - d) all of these

- 9) Two types of collaborative filtering are _____ & _____ based.
- a) person, people
 - b) attribute, class
 - c) supervised, unsupervised
 - d) none of these
- 10) Which of below is not an advantage of data integration?
- a) faster query processing
 - b) dependency
 - c) complex query processing
 - d) high volume data processing
- 11) Data points that are inconsistent with the remaining data distribution are often _____.
- a) scalable
 - b) noisy
 - c) clean
 - d) mean
- 12) Which of below is disadvantage of star schema?
- a) unoptimized
 - b) more joins between the tables
 - c) more storage space
 - d) all of these
- 13) A bank loan officer wants to decide a particular customer applying for a loan is risky or safe. Which model he shall use?
- a) decision tree
 - b) Naive Bayes classifier
 - c) artificial neural network
 - d) all of these
- 14) The two tiers of data warehouse architectures are _____.
- a) client, DW server
 - b) client, metadata
 - c) DW server, metadata
 - d) metadata, DW server

Seat No.	
-------------	--

Set **Q**

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two

12

- a) Forecasting gold rates can help investors to decide when to buy (or sell) the commodity. Gold rate depends upon five quantitative features - price of other precious metal, price of crude oil, stock exchange performance, bonds price, and currency exchange rate. Past data of 10,000 records containing five features and gold price is available. Describe a data analytic system which can predict gold rate given the features. Give detailed steps of the system designed.
- b) Data set given: 10, 8, 20, 15, 17. Normalize it to {0 to 1} and {1 to 4} using min-max normalization.
- c) Bank ABC wish to buy machine learning based software to decide whether to grant a business loan to customer or not. Bank already has complete data of past 20,000 records which consists of the features/attributes and correct outcome for each record. Design a scheme to check the performance of the software to be bought based on various performance parameters. Also evaluate the Type I and Type II errors associated.

Q.3 Solve any four.

16

- a) With suitable example compare different types of feature subset selection.
- b) With suitable example compare Euclidean distance and Manhattan distance.
- c) With suitable example show how to calculate Jaccard Index for binary set data.
- d) With two real life examples, describe how data mining is useful for business applications.
- e) With suitable examples compare – structured, semi-structured and unstructured data.

Section – II

Q.4 Solve any two.

12

- a) Given below training data, using linear regression analysis method -
- Predict price of the house with age 28 years
 - Calculate residual error for houses with age 20 years

Age of House (x)	Price of House (\$, 000) (y)
10	350
15	250
20	300
20	240
25	225

- b) With suitable example describe how a Naïve Bayes classifier can be used for prediction of class of a data record.
- c) Compare OLTP and OLAP

Q.5 Solve any four.

16

- Compare supervised learning and unsupervised learning
- What are advantages and disadvantages of K Means Clustering?
- Describe any four data warehouse access tools.
- With suitable example, explain Snowflake schema.
- Compare linear regression and classification with suitable examples.

Seat No.	
----------	--

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Take the odd man out: Lp norm, Jaccord index, dynamic time warping, window-based methods
 - a) Lp norm
 - b) Jaccord index
 - c) dynamic time warping
 - d) window based methods
- 2) Which of below is a dimension reduction technique?
 - a) axis rotation
 - b) PCA
 - c) SVD
 - d) all of these
- 3) Which of below is quantitative data?
 - a) pin code
 - b) age
 - c) address
 - d) all of these
- 4) If data set is completely homogeneous, then _____.
 - a) all data has same class
 - b) impurity is zero
 - c) entropy is zero
 - d) all of these
- 5) Distance functions are highly sensitive to _____.
 - a) data distribution
 - b) dimensionality
 - c) data type
 - d) all of these
- 6) Two types of collaborative filtering are _____ & _____ based.
 - a) person, people
 - b) attribute, class
 - c) supervised, unsupervised
 - d) none of these
- 7) Which of below is not an advantage of data integration?
 - a) faster query processing
 - b) dependency
 - c) complex query processing
 - d) high volume data processing
- 8) Data points that are inconsistent with the remaining data distribution are often _____.
 - a) scalable
 - b) noisy
 - c) clean
 - d) mean
- 9) Which of below is disadvantage of star schema?
 - a) unoptimized
 - b) more joins between the tables
 - c) more storage space
 - d) all of these

- 10) A bank loan officer wants to decide a particular customer applying for a loan is risky or safe. Which model he shall use?
- a) decision tree
 - b) Naive Bayes classifier
 - c) artificial neural network
 - d) all of these
- 11) The two tiers of data warehouse architectures are _____.
- a) client, DW server
 - b) client, metadata
 - c) DW server, metadata
 - d) metadata, DW server
- 12) Interquartile range is the _____ quartile subtracted from the _____ quartile.
- a) second, third
 - b) third, forth
 - c) first, forth
 - d) first, third
- 13) ML is the study of computer algorithms that _____.
- a) improve automatically through experience
 - b) learns from explicit rules
 - c) finds obvious relations in data
 - d) all of these
- 14) If $A = \text{Entropy}(2+, 3-)$ and $B = \text{Entropy}(3-, 2+)$, then _____.
- a) $A = B$
 - b) $A > B$
 - c) $B > A$
 - d) insufficient data

Seat No.	
----------	--

Set **R**

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two

12

- a) Forecasting gold rates can help investors to decide when to buy (or sell) the commodity. Gold rate depends upon five quantitative features - price of other precious metal, price of crude oil, stock exchange performance, bonds price, and currency exchange rate. Past data of 10,000 records containing five features and gold price is available. Describe a data analytic system which can predict gold rate given the features. Give detailed steps of the system designed.
- b) Data set given: 10, 8, 20, 15, 17. Normalize it to {0 to 1} and {1 to 4} using min-max normalization.
- c) Bank ABC wish to buy machine learning based software to decide whether to grant a business loan to customer or not. Bank already has complete data of past 20,000 records which consists of the features/attributes and correct outcome for each record. Design a scheme to check the performance of the software to be bought based on various performance parameters. Also evaluate the Type I and Type II errors associated.

Q.3 Solve any four.

16

- a) With suitable example compare different types of feature subset selection.
- b) With suitable example compare Euclidean distance and Manhattan distance.
- c) With suitable example show how to calculate Jaccard Index for binary set data.
- d) With two real life examples, describe how data mining is useful for business applications.
- e) With suitable examples compare – structured, semi-structured and unstructured data.

Section – II

Q.4 Solve any two.

12

- a) Given below training data, using linear regression analysis method -
- Predict price of the house with age 28 years
 - Calculate residual error for houses with age 20 years

Age of House (x)	Price of House (\$, 000) (y)
10	350
15	250
20	300
20	240
25	225

- b) With suitable example describe how a Naïve Bayes classifier can be used for prediction of class of a data record.
- c) Compare OLTP and OLAP

Q.5 Solve any four.

16

- Compare supervised learning and unsupervised learning
- What are advantages and disadvantages of K Means Clustering?
- Describe any four data warehouse access tools.
- With suitable example, explain Snowflake schema.
- Compare linear regression and classification with suitable examples.

Seat No.	
----------	--

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A bank loan officer wants to decide a particular customer applying for a loan is risky or safe. Which model he shall use?
 - a) decision tree
 - b) Naive Bayes classifier
 - c) artificial neural network
 - d) all of these
- 2) The two tiers of data warehouse architectures are _____.
 - a) client, DW server
 - b) client, metadata
 - c) DW server, metadata
 - d) metadata, DW server
- 3) Interquartile range is the _____ quartile subtracted from the _____ quartile.
 - a) second, third
 - b) third, forth
 - c) first, forth
 - d) first, third
- 4) ML is the study of computer algorithms that _____.
 - a) improve automatically through experience
 - b) learns from explicit rules
 - c) finds obvious relations in data
 - d) all of these
- 5) If $A = \text{Entropy}(2+, 3-)$ and $B = \text{Entropy}(3-, 2+)$, then _____.
 - a) $A = B$
 - b) $A > B$
 - c) $B > A$
 - d) insufficient data
- 6) Take the odd man out: Lp norm, Jaccord index, dynamic time warping, window-based methods
 - a) Lp norm
 - b) Jaccord index
 - c) dynamic time warping
 - d) window based methods
- 7) Which of below is a dimension reduction technique?
 - a) axis rotation
 - b) PCA
 - c) SVD
 - d) all of these
- 8) Which of below is quantitative data?
 - a) pin code
 - b) age
 - c) address
 - d) all of these

- 9) If data set is completely homogeneous, then _____.
a) all data has same class b) impurity is zero
c) entropy is zero d) all of these
- 10) Distance functions are highly sensitive to _____.
a) data distribution b) dimensionality
c) data type d) all of these
- 11) Two types of collaborative filtering are _____ & _____ based.
a) person, people b) attribute, class
c) supervised, unsupervised d) none of these
- 12) Which of below is not an advantage of data integration?
a) faster query processing b) dependency
c) complex query processing d) high volume data processing
- 13) Data points that are inconsistent with the remaining data distribution are often _____.
a) scalable b) noisy
c) clean d) mean
- 14) Which of below is disadvantage of star schema?
a) unoptimized b) more joins between the tables
c) more storage space d) all of these

Seat No.	
----------	--

Set **S**

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Data Analytics (197047806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any two

12

- a) Forecasting gold rates can help investors to decide when to buy (or sell) the commodity. Gold rate depends upon five quantitative features - price of other precious metal, price of crude oil, stock exchange performance, bonds price, and currency exchange rate. Past data of 10,000 records containing five features and gold price is available. Describe a data analytic system which can predict gold rate given the features. Give detailed steps of the system designed.
- b) Data set given: 10, 8, 20, 15, 17. Normalize it to {0 to 1} and {1 to 4} using min-max normalization.
- c) Bank ABC wish to buy machine learning based software to decide whether to grant a business loan to customer or not. Bank already has complete data of past 20,000 records which consists of the features/attributes and correct outcome for each record. Design a scheme to check the performance of the software to be bought based on various performance parameters. Also evaluate the Type I and Type II errors associated.

Q.3 Solve any four.

16

- a) With suitable example compare different types of feature subset selection.
- b) With suitable example compare Euclidean distance and Manhattan distance.
- c) With suitable example show how to calculate Jaccard Index for binary set data.
- d) With two real life examples, describe how data mining is useful for business applications.
- e) With suitable examples compare – structured, semi-structured and unstructured data.

Section – II

Q.4 Solve any two.

12

- a) Given below training data, using linear regression analysis method -
- Predict price of the house with age 28 years
 - Calculate residual error for houses with age 20 years

Age of House (x)	Price of House (\$, 000) (y)
10	350
15	250
20	300
20	240
25	225

- b) With suitable example describe how a Naïve Bayes classifier can be used for prediction of class of a data record.
- c) Compare OLTP and OLAP

Q.5 Solve any four.

16

- Compare supervised learning and unsupervised learning
- What are advantages and disadvantages of K Means Clustering?
- Describe any four data warehouse access tools.
- With suitable example, explain Snowflake schema.
- Compare linear regression and classification with suitable examples.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Computer organization deals with _____.
 - a) The sizes of data types that are supported.
 - b) The sizes of data types and the types of operations that are supported
 - c) The types of operations
 - d) Interfaces to peripheral devices
- 2) In I/O mapped I/O _____.
 - a) The I/O devices and the memory share the same address space
 - b) The I/O devices have a separate address space
 - c) The memory and I/O devices have an associated address space
 - d) A part of the memory is specifically set aside for the I/O operation
- 3) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.

a) 24	b) 23
c) 20	d) 16
- 4) The 32 bit representation of the decimal number is called as _____.

a) Double-precision	b) Single-precision
c) Extended format	d) None of the mentioned
- 5) The method of synchronising the processor with the I/O device in which the device sends a signal when it is ready is?

a) Exceptions	b) Signal handling
c) Interrupts	d) DMA
- 6) Overflow may occur while adding _____.
 - a) When two numbers are added that have large magnitudes and the same sign
 - b) When two numbers are added that have small magnitudes and the same sign
 - c) When two numbers are added that have large magnitudes and the different sign
 - d) When two numbers are added that have small magnitudes and the different sign

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four.** **16**
- a) Draw and describe the working of system bus model of a computer system.
 - b) Explain floating point number representation in detail.
 - c) Explain normalized scientific notation with suitable example.
 - d) Explain different addressing modes in ARC RISC processor.
 - e) Explain memory hierarchy in a computer system.
- Q.3 Attempt any two.** **12**
- a) Represent $(107.15)_{10}$ in a floating point representation with a sign bit, a 8-bit exponent, and 23 bits mantissa in a normalized notation in base 2.
 - b) Draw and explain a serial multiplier for 4 bit multiplication.
 - c) Write the ARC processor assembly program with meaning of each instruction for addition of two eight bit numbers

Section – II

- Q.4 Attempt any four.** **16**
- a) Explain the processor performance equation.
 - b) Explain overcoming data hazards with dynamic scheduling.
 - c) Explain challenges of parallel processing.
 - d) Explain multiprocessor cache coherence.
 - e) Explain basic compiler techniques for exposing instruction level parallelism.
- Q.5 Attempt any two.** **12**
- a) Explain five implementation techniques which change at a dramatic pace.
 - b) What is instruction level parallelism? Explain data hazards.
 - c) Explain the impact of time, volume, commoditization on a cost of computing system.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A type of parallelism that uses micro architectural techniques.

a) instructional	b) bit level
c) bit based	d) increasing
- 2) MIPS stands for?

a) Mandatory Instructions/sec	b) Millions of Instructions/sec
c) Most of Instructions/sec	d) Many Instructions / sec
- 3) Several instructions execution simultaneously in _____.

a) processing	b) multitasking
c) serial processing	d) parallel processing
- 4) The main objective in building the multi-microprocessor is _____.

a) greater throughput	b) enhanced fault tolerance
c) greater throughput and enhanced fault tolerance	d) none of the mentioned
- 5) An interface between the user or an application program, and the system resources are _____.

a) microprocessor	b) microcontroller
c) multi-microprocessor	d) operating system
- 6) An operating system provides _____.

a) hardware and software resource management	b) input/output management
c) memory management	d) all of the mentioned
- 7) Computer architecture deals with _____.

a) The sizes of data types that are supported.	b) The sizes of data types and the types of operations that are supported
c) The types of operations	d) Interfaces to peripheral devices

- 8) Computer organization deals with _____
- a) The sizes of data types that are supported.
 - b) The sizes of data types and the types of operations that are supported
 - c) The types of operations
 - d) Interfaces to peripheral devices
- 9) In I/O mapped I/O _____.
- a) The I/O devices and the memory share the same address space
 - b) The I/O devices have a separate address space
 - c) The memory and I/O devices have an associated address space
 - d) A part of the memory is specifically set aside for the I/O operation
- 10) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.
- a) 24
 - b) 23
 - c) 20
 - d) 16
- 11) The 32 bit representation of the decimal number is called as _____.
- a) Double-precision
 - b) Single-precision
 - c) Extended format
 - d) None of the mentioned
- 12) The method of synchronising the processor with the I/O device in which the device sends a signal when it is ready is?
- a) Exceptions
 - b) Signal handling
 - c) Interrupts
 - d) DMA
- 13) Overflow may occur while adding _____.
- a) When two numbers are added that have large magnitudes and the same sign
 - b) When two numbers are added that have small magnitudes and the same sign
 - c) When two numbers are added that have large magnitudes and the different sign
 - d) When two numbers are added that have small magnitudes and the different sign
- 14) The associative law of algebra does not always hold in computers.
- a) True
 - b) False

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four.** **16**
- a) Draw and describe the working of system bus model of a computer system.
 - b) Explain floating point number representation in detail.
 - c) Explain normalized scientific notation with suitable example.
 - d) Explain different addressing modes in ARC RISC processor.
 - e) Explain memory hierarchy in a computer system.
- Q.3 Attempt any two.** **12**
- a) Represent $(107.15)_{10}$ in a floating point representation with a sign bit, a 8-bit exponent, and 23 bits mantissa in a normalized notation in base 2.
 - b) Draw and explain a serial multiplier for 4 bit multiplication.
 - c) Write the ARC processor assembly program with meaning of each instruction for addition of two eight bit numbers

Section – II

- Q.4 Attempt any four.** **16**
- a) Explain the processor performance equation.
 - b) Explain overcoming data hazards with dynamic scheduling.
 - c) Explain challenges of parallel processing.
 - d) Explain multiprocessor cache coherence.
 - e) Explain basic compiler techniques for exposing instruction level parallelism.
- Q.5 Attempt any two.** **12**
- a) Explain five implementation techniques which change at a dramatic pace.
 - b) What is instruction level parallelism? Explain data hazards.
 - c) Explain the impact of time, volume, commoditization on a cost of computing system.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The main objective in building the multi-microprocessor is _____.
 - a) greater throughput
 - b) enhanced fault tolerance
 - c) greater throughput and enhanced fault tolerance
 - d) none of the mentioned
- 2) An interface between the user or an application program, and the system resources are _____.

a) microprocessor	b) microcontroller
c) multi-microprocessor	d) operating system
- 3) An operating system provides _____.
 - a) hardware and software resource management
 - b) input/output management
 - c) memory management
 - d) all of the mentioned
- 4) Computer architecture deals with _____.
 - a) The sizes of data types that are supported.
 - b) The sizes of data types and the types of operations that are supported
 - c) The types of operations
 - d) Interfaces to peripheral devices
- 5) Computer organization deals with _____.
 - a) The sizes of data types that are supported.
 - b) The sizes of data types and the types of operations that are supported
 - c) The types of operations
 - d) Interfaces to peripheral devices
- 6) In I/O mapped I/O _____.
 - a) The I/O devices and the memory share the same address space
 - b) The I/O devices have a separate address space
 - c) The memory and I/O devices have an associated address space
 - d) A part of the memory is specifically set aside for the I/O operation

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four. 16**
- a) Draw and describe the working of system bus model of a computer system.
 - b) Explain floating point number representation in detail.
 - c) Explain normalized scientific notation with suitable example.
 - d) Explain different addressing modes in ARC RISC processor.
 - e) Explain memory hierarchy in a computer system.
- Q.3 Attempt any two. 12**
- a) Represent $(107.15)_{10}$ in a floating point representation with a sign bit, a 8-bit exponent, and 23 bits mantissa in a normalized notation in base 2.
 - b) Draw and explain a serial multiplier for 4 bit multiplication.
 - c) Write the ARC processor assembly program with meaning of each instruction for addition of two eight bit numbers

Section – II

- Q.4 Attempt any four. 16**
- a) Explain the processor performance equation.
 - b) Explain overcoming data hazards with dynamic scheduling.
 - c) Explain challenges of parallel processing.
 - d) Explain multiprocessor cache coherence.
 - e) Explain basic compiler techniques for exposing instruction level parallelism.
- Q.5 Attempt any two. 12**
- a) Explain five implementation techniques which change at a dramatic pace.
 - b) What is instruction level parallelism? Explain data hazards.
 - c) Explain the impact of time, volume, commoditization on a cost of computing system.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Overflow may occur while adding _____.
 - a) When two numbers are added that have large magnitudes and the same sign
 - b) When two numbers are added that have small magnitudes and the same sign
 - c) When two numbers are added that have large magnitudes and the different sign
 - d) When two numbers are added that have small magnitudes and the different sign
- 2) The associative law of algebra does not always hold in computers.
 - a) True
 - b) False
- 3) A type of parallelism that uses micro architectural techniques.
 - a) instructional
 - b) bit level
 - c) bit based
 - d) increasing
- 4) MIPS stands for?
 - a) Mandatory Instructions/sec
 - b) Millions of Instructions/sec
 - c) Most of Instructions/sec
 - d) Many Instructions / sec
- 5) Several instructions execution simultaneously in _____.
 - a) processing
 - b) multitasking
 - c) serial processing
 - d) parallel processing
- 6) The main objective in building the multi-microprocessor is _____.
 - a) greater throughput
 - b) enhanced fault tolerance
 - c) greater throughput and enhanced fault tolerance
 - d) none of the mentioned
- 7) An interface between the user or an application program, and the system resources are _____.
 - a) microprocessor
 - b) microcontroller
 - c) multi-microprocessor
 - d) operating system

- 8) An operating system provides _____
- a) hardware and software resource management
 - b) input/output management
 - c) memory management
 - d) all of the mentioned
- 9) Computer architecture deals with _____
- a) The sizes of data types that are supported.
 - b) The sizes of data types and the types of operations that are supported
 - c) The types of operations
 - d) Interfaces to peripheral devices
- 10) Computer organization deals with _____
- a) The sizes of data types that are supported.
 - b) The sizes of data types and the types of operations that are supported
 - c) The types of operations
 - d) Interfaces to peripheral devices
- 11) In I/O mapped I/O _____.
- a) The I/O devices and the memory share the same address space
 - b) The I/O devices have a separate address space
 - c) The memory and I/O devices have an associated address space
 - d) A part of the memory is specifically set aside for the I/O operation
- 12) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.
- a) 24
 - b) 23
 - c) 20
 - d) 16
- 13) The 32 bit representation of the decimal number is called as _____.
- a) Double-precision
 - b) Single-precision
 - c) Extended format
 - d) None of the mentioned
- 14) The method of synchronising the processor with the I/O device in which the device sends a signal when it is ready is?
- a) Exceptions
 - b) Signal handling
 - c) Interrupts
 - d) DMA

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS ENGINEERING
Computer Architecture (197047809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four. 16**
- a) Draw and describe the working of system bus model of a computer system.
 - b) Explain floating point number representation in detail.
 - c) Explain normalized scientific notation with suitable example.
 - d) Explain different addressing modes in ARC RISC processor.
 - e) Explain memory hierarchy in a computer system.
- Q.3 Attempt any two. 12**
- a) Represent $(107.15)_{10}$ in a floating point representation with a sign bit, a 8-bit exponent, and 23 bits mantissa in a normalized notation in base 2.
 - b) Draw and explain a serial multiplier for 4 bit multiplication.
 - c) Write the ARC processor assembly program with meaning of each instruction for addition of two eight bit numbers

Section – II

- Q.4 Attempt any four. 16**
- *
- a) Explain the processor performance equation.
 - b) Explain overcoming data hazards with dynamic scheduling.
 - c) Explain challenges of parallel processing.
 - d) Explain multiprocessor cache coherence.
 - e) Explain basic compiler techniques for exposing instruction level parallelism.
- Q.5 Attempt any two. 12**
- a) Explain five implementation techniques which change at a dramatic pace.
 - b) What is instruction level parallelism? Explain data hazards.
 - c) Explain the impact of time, volume, commoditization on a cost of computing system.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is Artificial Intelligence?
 - a) Artificial Intelligence is a field that aims to make humans more intelligent
 - b) Artificial Intelligence is a field that aims to improve the security
 - c) Artificial Intelligence is a field that aims to develop intelligent machines
 - d) Artificial Intelligence is a field that aims to mine the data
- 2) Who is the inventor of Artificial Intelligence?
 - a) Geoffrey Hinton
 - b) Andrew Ng
 - c) John McCarthy
 - d) Jurgen Schmidhuber
- 3) Which of the following is not the commonly used programming language for Artificial Intelligence?
 - a) Perl
 - b) Java
 - c) PROLOG
 - d) LISP
- 4) What does the Bayesian network provide?
 - a) Partial description of the domain
 - b) Complete description of the problem
 - c) Complete description of the domain
 - d) None of the mentioned
- 5) The component of an Expert system is _____.
 - a) Knowledge Base
 - b) Inference Engine
 - c) User Interface
 - d) All of the above
- 6) Among the given options, which is not the required property of Knowledge representation?
 - a) Inferential Efficiency
 - b) Inferential Adequacy
 - c) Representational Verification
 - d) Representational Adequacy
- 7) First order logic Statements contains _____.
 - a) Predicate and Preposition
 - b) Subject and an Object
 - c) Predicate and Subject
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four questions. 16**
- a) Define Artificial Intelligence & List applications of AI & explain with detail?
 - b) Which are the types of intelligent agents? Explain goal-based agent with neat diagram.
 - c) Explain A* algorithm in detail.
 - d) What are the different issues in knowledge representation?
 - e) Describe the frame representation techniques of KR with example.
- Q.3 Solve any two questions. 12**
- a) Write the note on first order logic. Explain with the example.
 - b) Explain state space approach for solving any AI Problem with example.
 - c) Elaborate and explain the approaches & goals of Artificial Intelligence.

Section – II

- Q.4 Solve any four questions. 16**
- a) Explain the probability & Bayes theorem along with example.
 - b) Write a case study on the past, present and future of AI.
 - c) Write a note on utility theory.
 - d) Elaborate Q-Learning explain with example.
 - e) Write a note on statistical learning.
- Q.6 Solve any two questions. 12**
- a) Differentiate between supervised learning and unsupervised learning.
 - b) What is the Bayesian network? Explain with examples.
 - c) Explain constraint satisfaction problem in detail with one example.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the given element improve the performance of AI agent so that it can make better decisions?
 - a) Changing Element
 - b) Performance Element
 - c) Learning Element
 - d) None of the above
- 2) Wumpus World is a classic problem, best example of _____.
 - a) Single player Game
 - b) Two player Game
 - c) Reasoning with Knowledge
 - d) Knowledge based Game
- 3) _____ is/are the well-known Expert System/s for medical diagnosis systems.
 - a) MYSIN
 - b) CADUCEUS
 - c) DENDRAL
 - d) SMH.PAL
- 4) Which algorithm is used in the Game tree to make decisions of Win/Lose?
 - a) Heuristic Search Algorithm
 - b) DFS/BFS algorithm
 - c) Greedy Search Algorithm
 - d) Min/Max algorithm
- 5) Which of the following is the practical example of reinforcement learning?
 - a) House pricing prediction
 - b) Market basket analysis
 - c) Text classification
 - d) Driverless cars
- 6) If we have variables $x_1, x_2, x_3, \dots, x_n$, then the probabilities of a different combination of x_1, x_2, x_3 , are known as?
 - a) Table of conditional probabilities
 - b) Causal Component
 - c) Actual numbers
 - d) Joint probability distribution
- 7) Natural language processing has two subfields, namely: _____.
 - a) algorithmic and heuristic
 - b) time and motion
 - c) understanding and generation
 - d) symbolic and numeric
- 8) What is Artificial Intelligence?
 - a) Artificial Intelligence is a field that aims to make humans more intelligent
 - b) Artificial Intelligence is a field that aims to improve the security
 - c) Artificial Intelligence is a field that aims to develop intelligent machines
 - d) Artificial Intelligence is a field that aims to mine the data

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four questions. 16**
- a) Define Artificial Intelligence & List applications of AI & explain with detail?
 - b) Which are the types of intelligent agents? Explain goal-based agent with neat diagram.
 - c) Explain A* algorithm in detail.
 - d) What are the different issues in knowledge representation?
 - e) Describe the frame representation techniques of KR with example.
- Q.3 Solve any two questions. 12**
- a) Write the note on first order logic. Explain with the example.
 - b) Explain state space approach for solving any AI Problem with example.
 - c) Elaborate and explain the approaches & goals of Artificial Intelligence.

Section – II

- Q.4 Solve any four questions. 16**
- a) Explain the probability & Bayes theorem along with example.
 - b) Write a case study on the past, present and future of AI.
 - c) Write a note on utility theory.
 - d) Elaborate Q-Learning explain with example.
 - e) Write a note on statistical learning.
- Q.6 Solve any two questions. 12**
- a) Differentiate between supervised learning and unsupervised learning.
 - b) What is the Bayesian network? Explain with examples.
 - c) Explain constraint satisfaction problem in detail with one example.

Seat No.	
----------	--

Set R

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which algorithm is used in the Game tree to make decisions of Win/Lose?
 - a) Heuristic Search Algorithm
 - b) DFS/BFS algorithm
 - c) Greedy Search Algorithm
 - d) Min/Max algorithm
- 2) Which of the following is the practical example of reinforcement learning?
 - a) House pricing prediction
 - b) Market basket analysis
 - c) Text classification
 - d) Driverless cars
- 3) If we have variables $x_1, x_2, x_3, \dots, x_n$, then the probabilities of a different combination of x_1, x_2, x_3 , are known as?
 - a) Table of conditional probabilities
 - b) Causal Component
 - c) Actual numbers
 - d) Joint probability distribution
- 4) Natural language processing has two subfields, namely: _____.
 - a) algorithmic and heuristic
 - b) time and motion
 - c) understanding and generation
 - d) symbolic and numeric
- 5) What is Artificial Intelligence?
 - a) Artificial Intelligence is a field that aims to make humans more intelligent
 - b) Artificial Intelligence is a field that aims to improve the security
 - c) Artificial Intelligence is a field that aims to develop intelligent machines
 - d) Artificial Intelligence is a field that aims to mine the data
- 6) Who is the inventor of Artificial Intelligence?
 - a) Geoffrey Hinton
 - b) Andrew Ng
 - c) John McCarthy
 - d) Jurgen Schmidhuber
- 7) Which of the following is not the commonly used programming language for Artificial Intelligence?
 - a) Perl
 - b) Java
 - c) PROLOG
 - d) LISP

- 8) What does the Bayesian network provide?
a) Partial description of the domain
b) Complete description of the problem
c) Complete description of the domain
d) None of the mentioned
- 9) The component of an Expert system is _____.
a) Knowledge Base b) Inference Engine
c) User Interface d) All of the above
- 10) Among the given options, which is not the required property of Knowledge representation?
a) Inferential Efficiency b) Inferential Adequacy
c) Representational Verification d) Representational Adequacy
- 11) First order logic Statements contains _____.
a) Predicate and Preposition b) Subject and an Object
c) Predicate and Subject d) None of the above
- 12) Which of the given element improve the performance of AI agent so that it can make better decisions?
a) Changing Element b) Performance Element
c) Learning Element d) None of the above
- 13) Wumpus World is a classic problem, best example of _____.
a) Single player Game b) Two player Game
c) Reasoning with Knowledge d) Knowledge based Game
- 14) _____ is/are the well-known Expert System/s for medical diagnosis systems.
a) MYSIN b) CADUCEUS
c) DENDRAL d) SMH.PAL

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four questions. 16**
- a) Define Artificial Intelligence & List applications of AI & explain with detail?
 - b) Which are the types of intelligent agents? Explain goal-based agent with neat diagram.
 - c) Explain A* algorithm in detail.
 - d) What are the different issues in knowledge representation?
 - e) Describe the frame representation techniques of KR with example.
- Q.3 Solve any two questions. 12**
- a) Write the note on first order logic. Explain with the example.
 - b) Explain state space approach for solving any AI Problem with example.
 - c) Elaborate and explain the approaches & goals of Artificial Intelligence.

Section – II

- Q.4 Solve any four questions. 16**
- a) Explain the probability & Bayes theorem along with example.
 - b) Write a case study on the past, present and future of AI.
 - c) Write a note on utility theory.
 - d) Elaborate Q-Learning explain with example.
 - e) Write a note on statistical learning.
- Q.6 Solve any two questions. 12**
- a) Differentiate between supervised learning and unsupervised learning.
 - b) What is the Bayesian network? Explain with examples.
 - c) Explain constraint satisfaction problem in detail with one example.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Among the given options, which is not the required property of Knowledge representation?
 - a) Inferential Efficiency
 - b) Inferential Adequacy
 - c) Representational Verification
 - d) Representational Adequacy
- 2) First order logic Statements contains _____.
 - a) Predicate and Preposition
 - b) Subject and an Object
 - c) Predicate and Subject
 - d) None of the above
- 3) Which of the given element improve the performance of AI agent so that it can make better decisions?
 - a) Changing Element
 - b) Performance Element
 - c) Learning Element
 - d) None of the above
- 4) Wumpus World is a classic problem, best example of _____.
 - a) Single player Game
 - b) Two player Game
 - c) Reasoning with Knowledge
 - d) Knowledge based Game
- 5) _____ is/are the well-known Expert System/s for medical diagnosis systems.
 - a) MYSIN
 - b) CADUCEUS
 - c) DENDRAL
 - d) SMH.PAL
- 6) Which algorithm is used in the Game tree to make decisions of Win/Lose?
 - a) Heuristic Search Algorithm
 - b) DFS/BFS algorithm
 - c) Greedy Search Algorithm
 - d) Min/Max algorithm
- 7) Which of the following is the practical example of reinforcement learning?
 - a) House pricing prediction
 - b) Market basket analysis
 - c) Text classification
 - d) Driverless cars
- 8) If we have variables $x_1, x_2, x_3, \dots, x_n$, then the probabilities of a different combination of x_1, x_2, x_3 , are known as?
 - a) Table of conditional probabilities
 - b) Causal Component
 - c) Actual numbers
 - d) Joint probability distribution

- 9) Natural language processing has two subfields, namely: _____.
- a) algorithmic and heuristic
 - b) time and motion
 - c) understanding and generation
 - d) symbolic and numeric
- 10) What is Artificial Intelligence?
- a) Artificial Intelligence is a field that aims to make humans more intelligent
 - b) Artificial Intelligence is a field that aims to improve the security
 - c) Artificial Intelligence is a field that aims to develop intelligent machines
 - d) Artificial Intelligence is a field that aims to mine the data
- 11) Who is the inventor of Artificial Intelligence?
- a) Geoffrey Hinton
 - b) Andrew Ng
 - c) John McCarthy
 - d) Jurgen Schmidhuber
- 12) Which of the following is not the commonly used programming language for Artificial Intelligence?
- a) Perl
 - b) Java
 - c) PROLOG
 - d) LISP
- 13) What does the Bayesian network provide?
- a) Partial description of the domain
 - b) Complete description of the problem
 - c) Complete description of the domain
 - d) None of the mentioned
- 14) The component of an Expert system is _____.
- a) Knowledge Base
 - b) Inference Engine
 - c) User Interface
 - d) All of the above

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Artificial Intelligence (BTN03501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four questions. 16**
- a) Define Artificial Intelligence & List applications of AI & explain with detail?
 - b) Which are the types of intelligent agents? Explain goal-based agent with neat diagram.
 - c) Explain A* algorithm in detail.
 - d) What are the different issues in knowledge representation?
 - e) Describe the frame representation techniques of KR with example.
- Q.3 Solve any two questions. 12**
- a) Write the note on first order logic. Explain with the example.
 - b) Explain state space approach for solving any AI Problem with example.
 - c) Elaborate and explain the approaches & goals of Artificial Intelligence.

Section – II

- Q.4 Solve any four questions. 16**
- a) Explain the probability & Bayes theorem along with example.
 - b) Write a case study on the past, present and future of AI.
 - c) Write a note on utility theory.
 - d) Elaborate Q-Learning explain with example.
 - e) Write a note on statistical learning.
- Q.6 Solve any two questions. 12**
- a) Differentiate between supervised learning and unsupervised learning.
 - b) What is the Bayesian network? Explain with examples.
 - c) Explain constraint satisfaction problem in detail with one example.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03. Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is an operating system?
 - a) Interface between the hardware and application programs
 - b) Collection of programs that manages hardware resources
 - c) System service provider to the application programs
 - d) All of the mentioned

- 2) _____ Scheduler controls the degree of multi-programming.
 - a) Medium term scheduler
 - b) Long term scheduler
 - c) Short term scheduler
 - d) None of these

- 3) Process can be described as _____ if spends more time doing I/O than computations.
 - a) CPU-Bound process
 - b) I/O- bound Process
 - c) Cooperating process
 - d) None of these

- 4) In multilevel feedback queue scheduling algorithm: _____.
 - a) a process can move to a different classified ready queue
 - b) classification of ready queue is permanent
 - c) processes are not classified into groups
 - d) none of the mentioned

- 5) FCFS algorithm is non-preemptive in nature, that is, once CPU time has been allocated to a process, other processes can get CPU time only after the current process has finished. This property of FCFS scheduling leads to the situation called _____.
 - a) Convoy Effect
 - b) Common Effect
 - c) Belady's Effect
 - d) Aging Effect

- 6) A process can be _____.
 - a) Single threaded
 - b) Multi-threaded
 - c) Both single and multi-threaded
 - d) None of these

- 7) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called _____.
 - a) Job Queue
 - b) Ready Queue
 - c) Execution Queue
 - d) Process queue

- 8) If all processes I/O bound, the ready queue will almost always be _____ and the short term Scheduler will have a _____ to do.
- a) full, little
 - b) full, lot
 - c) empty, little
 - d) empty, lot
- 9) The segment of code in which the process may change common variables, update tables, write into files is known as: _____
- a) Entry Section
 - b) Remainder Section
 - c) Exit section
 - d) Critical section
- 10) The _____ algorithm selects the request with the least seek time from the current head position.
- a) FCFS Disk Scheduling
 - b) SSTF Disk Scheduling
 - c) SCAN Scheduling
 - d) C-SCAN Scheduling
- 11) What is/are the requirement/s for the solution to critical section problem?
- a) Mutual Exclusion
 - b) Progress
 - c) Bounded Waiting
 - d) All of the above
- 12) The wait-for graph is a deadlock detection algorithm that is applicable when ____.
- a) all resources have a single instance
 - b) all resources have multiple instances
 - c) no resources available in the system
 - d) both a and b
- 13) Thrashing _____.
- a) is a natural consequence of virtual memory systems
 - b) can always be avoided by swapping
 - c) always occurs on large computers
 - d) is a high paging activity
- 14) The _____ is the time for the disk arm to move the heads to the cylinder containing the desired sector.
- a) Seek Time
 - b) Rotational Latency
 - c) Bandwidth
 - d) None of these

Seat
No.Set **P**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All Questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three. **12**

- a) Explain Scheduling criteria in detail.
- b) What are the different states of processes during its lifetime, explain in detail with diagram.
- c) Write a note on Semaphore.
- d) What is thread? Why it is called as lightweight process? Differentiate User thread and Kernel Thread.

Q.3 Answer any one.

- a) Consider, Processes along with their Burst Time and Arrival Time. Calculate Average Waiting Time, Average Turn Around Time, using Priority Scheduling Algorithm (Non- Preemptive). All processes arrived at time 0ms. **08**
 Low Number Indicates High Priority

Process	Burst Time	Priority
P1	10	1
P2	5	0
P3	6	2
P4	3	4
P5	2	3

- i) Draw Gantt Chart
 - ii) Calculate Average waiting Time
 - iii) Calculate Average Turnaround Time
 - iv) Also find number of context switches.
- b) How synchronization can be achieved for Reader-Writer problem using semaphore. Write structure of Reader and Writer process.

Q.4 Explain different types of schedulers in detail. Draw queuing diagram and state different types of queues used by processes during execution. How different scheduler selects processes from these queues for execution. **08**

Section – II

Q.5 Solve any Three.

12

- a) What are the four necessary conditions for deadlock to occur in the system.
- b) Explain importance of virtual memory with example.
- c) Consider the following segment table

Segment	Base	Length	Logical Address
0	219	600	0430
1	2300	14	110
2	90	100	2500
3	1327	580	3400

What are the physical addresses for the given logical addresses?

- d) Write a note on SCAN Disk Scheduling.

Q.6 Answer Any one

08

- a) Consider the following page reference string
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
How many page fault would occur for the following page replacement algorithm?

- a) LRU
- b) FIFO
- c) Optimal

Consider number of frames = 3. Which algorithm gives minimum page fault?

- b) Consider the following snapshot of a system.

Process	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

Answer the following questions using Bankers algorithm:

- 1) What is the content of *Need* Matrix?
- 2) Is the system in safe state?
- 3) If request from process P1 arrives for (1,0,2) can the request be granted immediately?

Q.7 What is Page fault? What are the steps performed by Operating system to handle the page fault?

08

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03. Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) If all processes I/O bound, the ready queue will almost always be _____ and the short term Scheduler will have a _____ to do.
 - a) full, little
 - b) full, lot
 - c) empty, little
 - d) empty, lot
- 2) The segment of code in which the process may change common variables, update tables, write into files is known as: _____
 - a) Entry Section
 - b) Remainder Section
 - c) Exit section
 - d) Critical section
- 3) The _____ algorithm selects the request with the least seek time from the current head position.
 - a) FCFS Disk Scheduling
 - b) SSTF Disk Scheduling
 - c) SCAN Scheduling
 - d) C-SCAN Scheduling
- 4) What is/are the requirement/s for the solution to critical section problem?
 - a) Mutual Exclusion
 - b) Progress
 - c) Bounded Waiting
 - d) All of the above
- 5) The wait-for graph is a deadlock detection algorithm that is applicable when _____.
 - a) all resources have a single instance
 - b) all resources have multiple instances
 - c) no resources available in the system
 - d) both a and b
- 6) Thrashing _____.
 - a) is a natural consequence of virtual memory systems
 - b) can always be avoided by swapping
 - c) always occurs on large computers
 - d) is a high paging activity
- 7) The _____ is the time for the disk arm to move the heads to the cylinder containing the desired sector.
 - a) Seek Time
 - b) Rotational Latency
 - c) Bandwidth
 - d) None of these

- 8) What is an operating system?
- a) Interface between the hardware and application programs
 - b) Collection of programs that manages hardware resources
 - c) System service provider to the application programs
 - d) All of the mentioned
- 9) _____ Scheduler controls the degree of multi-programming.
- a) Medium term scheduler
 - b) Long term scheduler
 - c) Short term scheduler
 - d) None of these
- 10) Process can be described as _____ if spends more time doing I/O than computations.
- a) CPU-Bound process
 - b) I/O- bound Process
 - c) Cooperating process
 - d) None of these
- 11) In multilevel feedback queue scheduling algorithm: _____.
- a) a process can move to a different classified ready queue
 - b) classification of ready queue is permanent
 - c) processes are not classified into groups
 - d) none of the mentioned
- 12) FCFS algorithm is non-preemptive in nature, that is, once CPU time has been allocated to a process, other processes can get CPU time only after the current process has finished. This property of FCFS scheduling leads to the situation called _____.
- a) Convoy Effect
 - b) Common Effect
 - c) Belady's Effect
 - d) Aging Effect
- 13) A process can be _____.
- a) Single threaded
 - b) Multi-threaded
 - c) Both single and multi-threaded
 - d) None of these
- 14) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called _____.
- a) Job Queue
 - b) Ready Queue
 - c) Execution Queue
 - d) Process queue

Seat
No.Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All Questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three. **12**

- a) Explain Scheduling criteria in detail.
- b) What are the different states of processes during its lifetime, explain in detail with diagram.
- c) Write a note on Semaphore.
- d) What is thread? Why it is called as lightweight process? Differentiate User thread and Kernel Thread.

Q.3 Answer any one.

- a) Consider, Processes along with their Burst Time and Arrival Time. Calculate Average Waiting Time, Average Turn Around Time, using Priority Scheduling Algorithm (Non- Preemptive). All processes arrived at time 0ms. **08**
 Low Number Indicates High Priority

Process	Burst Time	Priority
P1	10	1
P2	5	0
P3	6	2
P4	3	4
P5	2	3

- i) Draw Gantt Chart
 - ii) Calculate Average waiting Time
 - iii) Calculate Average Turnaround Time
 - iv) Also find number of context switches.
- b) How synchronization can be achieved for Reader-Writer problem using semaphore. Write structure of Reader and Writer process.

Q.4 Explain different types of schedulers in detail. Draw queuing diagram and state different types of queues used by processes during execution. How different scheduler selects processes from these queues for execution. **08**

Section – II

Q.5 Solve any Three.

12

- a) What are the four necessary conditions for deadlock to occur in the system.
- b) Explain importance of virtual memory with example.
- c) Consider the following segment table

Segment	Base	Length	Logical Address
0	219	600	0430
1	2300	14	110
2	90	100	2500
3	1327	580	3400

What are the physical addresses for the given logical addresses?

- d) Write a note on SCAN Disk Scheduling.

Q.6 Answer Any one

08

- a) Consider the following page reference string
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
How many page fault would occur for the following page replacement algorithm?

- a) LRU
- b) FIFO
- c) Optimal

Consider number of frames = 3. Which algorithm gives minimum page fault?

- b) Consider the following snapshot of a system.

Process	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

Answer the following questions using Bankers algorithm:

- 1) What is the content of *Need* Matrix?
- 2) Is the system in safe state?
- 3) If request from process P1 arrives for (1,0,2) can the request be granted immediately?

Q.7 What is Page fault? What are the steps performed by Operating system to handle the page fault?

08

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03. Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is/are the requirement/s for the solution to critical section problem?
 - a) Mutual Exclusion
 - b) Progress
 - c) Bounded Waiting
 - d) All of the above
- 2) The wait-for graph is a deadlock detection algorithm that is applicable when _____.
 - a) all resources have a single instance
 - b) all resources have multiple instances
 - c) no resources available in the system
 - d) both a and b
- 3) Thrashing _____.
 - a) is a natural consequence of virtual memory systems
 - b) can always be avoided by swapping
 - c) always occurs on large computers
 - d) is a high paging activity
- 4) The _____ is the time for the disk arm to move the heads to the cylinder containing the desired sector.
 - a) Seek Time
 - b) Rotational Latency
 - c) Bandwidth
 - d) None of these
- 5) What is an operating system?
 - a) Interface between the hardware and application programs
 - b) Collection of programs that manages hardware resources
 - c) System service provider to the application programs
 - d) All of the mentioned
- 6) _____ Scheduler controls the degree of multi-programming.
 - a) Medium term scheduler
 - b) Long term scheduler
 - c) Short term scheduler
 - d) None of these
- 7) Process can be described as _____ if spends more time doing I/O than computations.
 - a) CPU-Bound process
 - b) I/O- bound Process
 - c) Cooperating process
 - d) None of these

- 8) In multilevel feedback queue scheduling algorithm: _____.
- a) a process can move to a different classified ready queue
 - b) classification of ready queue is permanent
 - c) processes are not classified into groups
 - d) none of the mentioned
- 9) FCFS algorithm is non-preemptive in nature, that is, once CPU time has been allocated to a process, other processes can get CPU time only after the current process has finished. This property of FCFS scheduling leads to the situation called _____.
- a) Convoy Effect
 - b) Common Effect
 - c) Belady's Effect
 - d) Aging Effect
- 10) A process can be _____.
- a) Single threaded
 - b) Multi-threaded
 - c) Both single and multi-threaded
 - d) None of these
- 11) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called _____.
- a) Job Queue
 - b) Ready Queue
 - c) Execution Queue
 - d) Process queue
- 12) If all processes I/O bound, the ready queue will almost always be _____ and the short term Scheduler will have a _____ to do.
- a) full, little
 - b) full, lot
 - c) empty, little
 - d) empty, lot
- 13) The segment of code in which the process may change common variables, update tables, write into files is known as: _____.
- a) Entry Section
 - b) Remainder Section
 - c) Exit section
 - d) Critical section
- 14) The _____ algorithm selects the request with the least seek time from the current head position.
- a) FCFS Disk Scheduling
 - b) SSTF Disk Scheduling
 - c) SCAN Scheduling
 - d) C-SCAN Scheduling

Seat
No.Set **R**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All Questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three. **12**

- a) Explain Scheduling criteria in detail.
- b) What are the different states of processes during its lifetime, explain in detail with diagram.
- c) Write a note on Semaphore.
- d) What is thread? Why it is called as lightweight process? Differentiate User thread and Kernel Thread.

Q.3 Answer any one.

- a) Consider, Processes along with their Burst Time and Arrival Time. Calculate Average Waiting Time, Average Turn Around Time, using Priority Scheduling Algorithm (Non- Preemptive). All processes arrived at time 0ms. **08**
 Low Number Indicates High Priority

Process	Burst Time	Priority
P1	10	1
P2	5	0
P3	6	2
P4	3	4
P5	2	3

- i) Draw Gantt Chart
 - ii) Calculate Average waiting Time
 - iii) Calculate Average Turnaround Time
 - iv) Also find number of context switches.
- b) How synchronization can be achieved for Reader-Writer problem using semaphore. Write structure of Reader and Writer process.

Q.4 Explain different types of schedulers in detail. Draw queuing diagram and state different types of queues used by processes during execution. How different scheduler selects processes from these queues for execution. **08**

Section – II

12

Q.5 Solve any Three.

- a) What are the four necessary conditions for deadlock to occur in the system.
 b) Explain importance of virtual memory with example.
 c) Consider the following segment table

Segment	Base	Length	Logical Address
0	219	600	0430
1	2300	14	110
2	90	100	2500
3	1327	580	3400

What are the physical addresses for the given logical addresses?

- d) Write a note on SCAN Disk Scheduling.

Q.6 Answer Any one

08

- a) Consider the following page reference string
 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
 How many page fault would occur for the following page replacement algorithm?

- a) LRU
 b) FIFO
 c) Optimal

Consider number of frames = 3. Which algorithm gives minimum page fault?

- b) Consider the following snapshot of a system.

Process	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

Answer the following questions using Bankers algorithm:

- 1) What is the content of *Need* Matrix?
- 2) Is the system in safe state?
- 3) If request from process P1 arrives for (1,0,2) can the request be granted immediately?

Q.7 What is Page fault? What are the steps performed by Operating system to handle the page fault?

08

- 8) Thrashing _____.
- a) is a natural consequence of virtual memory systems
 - b) can always be avoided by swapping
 - c) always occurs on large computers
 - d) is a high paging activity
- 9) The _____ is the time for the disk arm to move the heads to the cylinder containing the desired sector.
- a) Seek Time
 - b) Rotational Latency
 - c) Bandwidth
 - d) None of these
- 10) What is an operating system?
- a) Interface between the hardware and application programs
 - b) Collection of programs that manages hardware resources
 - c) System service provider to the application programs
 - d) All of the mentioned
- 11) _____ Scheduler controls the degree of multi-programming.
- a) Medium term scheduler
 - b) Long term scheduler
 - c) Short term scheduler
 - d) None of these
- 12) Process can be described as _____ if spends more time doing I/O than computations.
- a) CPU-Bound process
 - b) I/O- bound Process
 - c) Cooperating process
 - d) None of these
- 13) In multilevel feedback queue scheduling algorithm: _____.
- a) a process can move to a different classified ready queue
 - b) classification of ready queue is permanent
 - c) processes are not classified into groups
 - d) none of the mentioned
- 14) FCFS algorithm is non-preemptive in nature, that is, once CPU time has been allocated to a process, other processes can get CPU time only after the current process has finished. This property of FCFS scheduling leads to the situation called _____.
- a) Convoy Effect
 - b) Common Effect
 - c) Belady's Effect
 - d) Aging Effect

Seat
No.Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Operating Systems (BTN03502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All Questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three. **12**

- a) Explain Scheduling criteria in detail.
- b) What are the different states of processes during its lifetime, explain in detail with diagram.
- c) Write a note on Semaphore.
- d) What is thread? Why it is called as lightweight process? Differentiate User thread and Kernel Thread.

Q.3 Answer any one.

- a) Consider, Processes along with their Burst Time and Arrival Time. Calculate Average Waiting Time, Average Turn Around Time, using Priority Scheduling Algorithm (Non- Preemptive). All processes arrived at time 0ms. **08**
 Low Number Indicates High Priority

Process	Burst Time	Priority
P1	10	1
P2	5	0
P3	6	2
P4	3	4
P5	2	3

- i) Draw Gantt Chart
 - ii) Calculate Average waiting Time
 - iii) Calculate Average Turnaround Time
 - iv) Also find number of context switches.
- b) How synchronization can be achieved for Reader-Writer problem using semaphore. Write structure of Reader and Writer process.

Q.4 Explain different types of schedulers in detail. Draw queuing diagram and state different types of queues used by processes during execution. How different scheduler selects processes from these queues for execution. **08**

Section – II

12

Q.5 Solve any Three.

- a) What are the four necessary conditions for deadlock to occur in the system.
- b) Explain importance of virtual memory with example.
- c) Consider the following segment table

Segment	Base	Length	Logical Address
0	219	600	0430
1	2300	14	110
2	90	100	2500
3	1327	580	3400

What are the physical addresses for the given logical addresses?

- d) Write a note on SCAN Disk Scheduling.

Q.6 Answer Any one

08

- a) Consider the following page reference string
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
How many page fault would occur for the following page replacement algorithm?

- a) LRU
- b) FIFO
- c) Optimal

Consider number of frames = 3. Which algorithm gives minimum page fault?

- b) Consider the following snapshot of a system.

Process	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

Answer the following questions using Bankers algorithm:

- 1) What is the content of *Need* Matrix?
- 2) Is the system in safe state?
- 3) If request from process P1 arrives for (1,0,2) can the request be granted immediately?

Q.7 What is Page fault? What are the steps performed by Operating system to handle the page fault?

08

- 9) Consider two statements for two-phase locking protocol
S1 : In growing phase a transaction may obtain locks
S2 : In growing phase a transaction may not release any lock
- a) Both S1 and S2 are true b) Only S1 is true
c) Only S2 is true d) Both S1 and S2 are false
- 10) Which of the log is not in transaction state?
- a) Start b) Write
c) Rollback d) Commit
- 11) Check-points are used for _____.
- a) transaction recovery
b) transaction concurrency control
c) designing serializable schedule
d) designing optimized query
- 12) For the B+ tree, following is true _____
- a) Each non-leaf node has between $\lceil n/2 \rceil$ to n^2 children
b) Each non-leaf node has between $\lceil n/2 \rceil$ to $\lceil n/4 \rceil$ children
c) Each non-leaf node has between $\lceil n/2 \rceil$ to children
d) Each non-leaf node has same number of children
- 13) Which of the following scenarios lead to a non-recoverable schedule?
- a) A transaction writes a data item after it is read by an uncommitted transaction
b) A transaction reads a data item after it is read by an uncommitted transaction
c) A transaction reads a data item after it is written by a committed transaction
d) A transaction reads a data item after it is written by an uncommitted transaction
- 14) In a two-phase locking protocol, a transaction _____ downgrade a write lock to a read lock,
- a) cannot, in the growing phase only
b) can, under all circumstances
c) can, in the shrinking phase only
d) cannot, under any circumstances

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) What are the functions of Database Administrator?
 - b) Write a short note on Nested subqueries with example.
 - c) Give the comparison of BCNF and 3NF, which one is desirable and why?
 - d) Explain different Aggregate operations in SQL.
 - e) Explain different string operations in SQL with example.
- Q.3 Attempt any two. 16**
- a) Explain Extended Relational Algebra operation.
 - b) What is the concept of canonical cover? How to compute it? Give, example.
 - c) What is key? Explain Different Keys in relational model.

Section – II

- Q.4 Attempt any three 12**
- a) Write a short note on Bitmap indices.
 - b) Explain in detail the concept of Conflict serializability with example.
 - c) Explain the concept of recoverability with recoverable schedule.
 - d) Explain validation based protocol with example.
 - e) Write a short note on Buffer management in Recovery system.
- Q.5 Attempt any two. 16**
- a) Explain the distinction between closed and open hashing. Discuss merits of both techniques in database applications.
 - b) Explain in detail B⁺ tree file organization with an example.
 - c) Explain deferred database modifications and Immediate database modifications with example.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ index has an index entry for every search key value in the data file.
 - a) Sparse
 - b) Dense
 - c) Both a and b
 - d) None

- 2) Consider two statements for two-phase locking protocol
 S1 : In growing phase a transaction may obtain locks
 S2 : In growing phase a transaction may not release any lock
 - a) Both S1 and S2 are true
 - b) Only S1 is true
 - c) Only S2 is true
 - d) Both S1 and S2 are false

- 3) Which of the log is not in transaction state?
 - a) Start
 - b) Write
 - c) Rollback
 - d) Commit

- 4) Check-points are used for _____.
 - a) transaction recovery
 - b) transaction concurrency control
 - c) designing serializable schedule
 - d) designing optimized query

- 5) For the B+ tree, following is true _____.
 - a) Each non-leaf node has between $[n/2]$ to n^2 children
 - b) Each non-leaf node has between $[n/2]$ to $[n/4]$ children
 - c) Each non-leaf node has between $[n/2]$ to children
 - d) Each non-leaf node has same number of children

- 6) Which of the following scenarios lead to a non-recoverable schedule?
 - a) A transaction writes a data item after it is read by an uncommitted transaction
 - b) A transaction reads a data item after it is read by an uncommitted transaction
 - c) A transaction reads a data item after it is written by a committed transaction
 - d) A transaction reads a data item after it is written by an uncommitted transaction

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) What are the functions of Database Administrator?
 - b) Write a short note on Nested subqueries with example.
 - c) Give the comparison of BCNF and 3NF, which one is desirable and why?
 - d) Explain different Aggregate operations in SQL.
 - e) Explain different string operations in SQL with example.
- Q.3 Attempt any two. 16**
- a) Explain Extended Relational Algebra operation.
 - b) What is the concept of canonical cover? How to compute it? Give, example.
 - c) What is key? Explain Different Keys in relational model.

Section – II

- Q.4 Attempt any three 12**
- a) Write a short note on Bitmap indices.
 - b) Explain in detail the concept of Conflict serializability with example.
 - c) Explain the concept of recoverability with recoverable schedule.
 - d) Explain validation based protocol with example.
 - e) Write a short note on Buffer management in Recovery system.
- Q.5 Attempt any two. 16**
- a) Explain the distinction between closed and open hashing. Discuss merits of both techniques in database applications.
 - b) Explain in detail B⁺ tree file organization with an example.
 - c) Explain deferred database modifications and Immediate database modifications with example.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Check-points are used for _____.
 - a) transaction recovery
 - b) transaction concurrency control
 - c) designing serializable schedule
 - d) designing optimized query
- 2) For the B+ tree, following is true _____.
 - a) Each non-leaf node has between $[n/2]$ to n^2 children
 - b) Each non-leaf node has between $[n/2]$ to $[n/4]$ children
 - c) Each non-leaf node has between $[n/2]$ to children
 - d) Each non-leaf node has same number of children
- 3) Which of the following scenarios lead to a non-recoverable schedule?
 - a) A transaction writes a data item after it is read by an uncommitted transaction
 - b) A transaction reads a data item after it is read by an uncommitted transaction
 - c) A transaction reads a data item after it is written by a committed transaction
 - d) A transaction reads a data item after it is written by an uncommitted transaction
- 4) In a two-phase locking protocol, a transaction _____ downgrade a write lock to a read lock,
 - a) cannot, in the growing phase only
 - b) can, under all circumstances
 - c) can, in the shrinking phase only
 - d) cannot, under any circumstances
- 5) A view of database that appears to an application program is known as _____.
 - a) Schema
 - b) Subschema
 - c) Virtual table
 - d) none of the table

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) What are the functions of Database Administrator?
 - b) Write a short note on Nested subqueries with example.
 - c) Give the comparison of BCNF and 3NF, which one is desirable and why?
 - d) Explain different Aggregate operations in SQL.
 - e) Explain different string operations in SQL with example.
- Q.3 Attempt any two. 16**
- a) Explain Extended Relational Algebra operation.
 - b) What is the concept of canonical cover? How to compute it? Give, example.
 - c) What is key? Explain Different Keys in relational model.

Section – II

- Q.4 Attempt any three 12**
- a) Write a short note on Bitmap indices.
 - b) Explain in detail the concept of Conflict serializability with example.
 - c) Explain the concept of recoverability with recoverable schedule.
 - d) Explain validation based protocol with example.
 - e) Write a short note on Buffer management in Recovery system.
- Q.5 Attempt any two. 16**
- a) Explain the distinction between closed and open hashing. Discuss merits of both techniques in database applications.
 - b) Explain in detail B⁺ tree file organization with an example.
 - c) Explain deferred database modifications and Immediate database modifications with example.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) We say that a relation schema R is in first normal form (1 NF) if _____.
 - a) The domains of all attributes of R are atomic
 - b) The relation schema does not allow NULL values
 - c) The relation schema does not allow NULL attributes
 - d) The relation schema has a foreign key
- 2) In SQL, which command is used to remove rows from a table?
 - a) DELETE
 - b) REMOVE
 - c) TRUNCATE
 - d) Both a and c
- 3) _____ index has an index entry for every search key value in the data file.
 - a) Sparse
 - b) Dense
 - c) Both a and b
 - d) None
- 4) Consider two statements for two-phase locking protocol
 S1 : In growing phase a transaction may obtain locks
 S2 : In growing phase a transaction may not release any lock
 - a) Both S1 and S2 are true
 - b) Only S1 is true
 - c) Only S2 is true
 - d) Both S1 and S2 are false
- 5) Which of the log is not in transaction state?
 - a) Start
 - b) Write
 - c) Rollback
 - d) Commit
- 6) Check-points are used for _____.
 - a) transaction recovery
 - b) transaction concurrency control
 - c) designing serializable schedule
 - d) designing optimized query
- 7) For the B+ tree, following is true _____.
 - a) Each non-leaf node has between $\lceil n/2 \rceil$ to n^2 children
 - b) Each non-leaf node has between $\lceil n/2 \rceil$ to $\lceil n/4 \rceil$ children
 - c) Each non-leaf node has between $\lceil n/2 \rceil$ to children
 - d) Each non-leaf node has same number of children

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Database Engineering (BTN03503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) What are the functions of Database Administrator?
 - b) Write a short note on Nested subqueries with example.
 - c) Give the comparison of BCNF and 3NF, which one is desirable and why?
 - d) Explain different Aggregate operations in SQL.
 - e) Explain different string operations in SQL with example.
- Q.3 Attempt any two. 16**
- a) Explain Extended Relational Algebra operation.
 - b) What is the concept of canonical cover? How to compute it? Give, example.
 - c) What is key? Explain Different Keys in relational model.

Section – II

- Q.4 Attempt any three 12**
- a) Write a short note on Bitmap indices.
 - b) Explain in detail the concept of Conflict serializability with example.
 - c) Explain the concept of recoverability with recoverable schedule.
 - d) Explain validation based protocol with example.
 - e) Write a short note on Buffer management in Recovery system.
- Q.5 Attempt any two. 16**
- a) Explain the distinction between closed and open hashing. Discuss merits of both techniques in database applications.
 - b) Explain in detail B⁺ tree file organization with an example.
 - c) Explain deferred database modifications and Immediate database modifications with example.

- 7) Floyd Warshall's Algorithm is used for solving _____.
a) All pair shortest path problems
b) Single Source shortest path problems
c) Network flow problems
d) Sorting problems
- 8) The traveling salesman problem involves visiting each city how many times?
a) 0
b) 1
c) 2
d) 3
- 9) Which of the problems cannot be solved by backtracking method?
a) n-queen problem
b) subset sum problem
c) Hamiltonian circuit problem
d) travelling salesman problem
- 10) Backtracking algorithm is implemented by constructing a tree of choices called as _____.
a) State-space tree
b) State-chart tree
c) Node tree
d) Backtracking tree
- 11) The problem of placing n queens in a chessboard such that no two queens attack each other is called as _____.
a) n-queen problem
b) eight queens puzzle
c) four queens puzzle
d) 1-queen problem
- 12) Problems that can be solved in polynomial time are known as _____.
a) Intractable
b) Tractable
c) Decision
d) Complete
- 13) Halting problem is an example for _____.
a) decidable problem
b) undecidable problem
c) complete problem
d) trackable problem
- 14) Which of the following is/are property/properties of a dynamic programming problem?
a) Evolutionary Approach
b) Require More Time
c) Optimal Substructure & Overlapping Subproblems
d) Greedy Approach

Seat
No.

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Design and Analysis of Algorithm (BTN03504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Attempt any Three: 12**

- Define algorithm, State different criteria for algorithms.
- Write a short note on binary search and explain recursive binary search algorithm.
- Sort the following sequence using merge sort
38, 27, 43, 3, 9, 82, 10, 15, 21, 7
- Write a control abstraction for subset paradigm using greedy method.

Q.3 Attempt any One: 08

- Explain time and space complexity of an algorithm with examples in detail.
- Find optimal merge pattern for the file of length:
28, 32, 12, 5, 84, 53, 91, 35, 3, 11

Q.4 Explain Knapsack problem with following example. Find an optimal solution to the, knapsack problem with 08

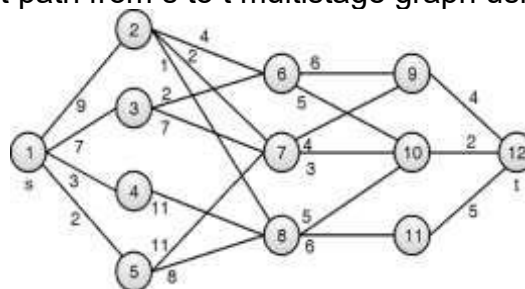
$N=3, m=20, (p_1, p_2, p_3) = (25, 24, 15) (w_1, w_2, w_3) = (18, 15, 10)$

Section – II**Q.5 Attempt any Three: 12**

- Explain Hamilton cycle with example.
- Differentiate between tractable and intractable problem.
- Explain halting problem.
- Generate the set $S_i, 0 \leq i \leq 3$, for following knapsack instance with $n = 3, (p_1, p_2, p_3) = (1, 2, 5)$ and $(w_1, w_2, w_3) = (2, 3, 4)$ and $m = 6$. Find optimal solution using dynamic programming.

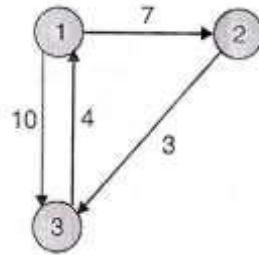
Q.6 Attempt any One: 08

- Find minimum cost path from s to t multistage graph using forward approach.



- Write note on:
 - Graph Coloring
 - P, NP, NP-Complete

Q.7 Find all pair shortest path using Dynamic programming.



Seat No.	
----------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Design and Analysis of Algorithm (BTN03504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The traveling salesman problem involves visiting each city how many times?

a) 0	b) 1
c) 2	d) 3
- 2) Which of the problems cannot be solved by backtracking method?

a) n-queen problem	b) subset sum problem
c) Hamiltonian circuit problem	d) travelling salesman problem
- 3) Backtracking algorithm is implemented by constructing a tree of choices called as _____.

a) State-space tree	b) State-chart tree
c) Node tree	d) Backtracking tree
- 4) The problem of placing n queens in a chessboard such that no two queens attack each other is called as _____.

a) n-queen problem	b) eight queens puzzle
c) four queens puzzle	d) 1-queen problem
- 5) Problems that can be solved in polynomial time are known as _____.

a) Intractable	b) Tractable
c) Decision	d) Complete
- 6) Halting problem is an example for _____.

a) decidable problem	b) undecidable problem
c) complete problem	d) trackable problem
- 7) Which of the following is/are property/properties of a dynamic programming problem?
 - a) Evolutionary Approach
 - b) Require More Time
 - c) Optimal Substructure & Overlapping Subproblems
 - d) Greedy Approach
- 8) If for an algorithm time complexity is given by $O(1)$ then complexity of it is _____.

a) Constant	b) Polynomial
c) Exponential	d) None of the mentioned

- 9) An algorithm is _____.
- a) A piece of code to be execute
 - b) A loosely written code to make final code
 - c) A step by step procedure to solve problem
 - d) All of the above
- 10) An algorithm that calls itself directly or indirectly is known as _____.
- a) Sub algorithm
 - b) Recursion
 - c) Polish notation
 - d) Traversal algorithm
- 11) The complexity of Binary search algorithm is _____.
- a) $O(n)$
 - b) $O(\log n)$
 - c) $O(n^2)$
 - d) $O(\log n^2)$
- 12) Dijkstra's Algorithm cannot be applied on _____.
- a) Directed and weighted graphs
 - b) Graphs having negative weight function
 - c) Unweighted graphs
 - d) Undirected and unweighted graphs
- 13) You are given a knapsack that can carry a maximum weight of 60. There are 4 items with weights {20, 30, 40, 70} and values {70, 80, 90, 200}. What is the maximum value of the items you can carry using the 0/1 knapsack?
- a) 160
 - b) 200
 - c) 170
 - d) 90
- 14) Floyd Warshall's Algorithm is used for solving _____.
- a) All pair shortest path problems
 - b) Single Source shortest path problems
 - c) Network flow problems
 - d) Sorting problems

Seat No.	
----------	--

Set Q

**T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Design and Analysis of Algorithm (BTN03504)**

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three: **12**

- a) Define algorithm, State different criteria for algorithms.
- b) Write a short note on binary search and explain recursive binary search algorithm.
- c) Sort the following sequence using merge sort
38, 27, 43, 3, 9, 82, 10, 15, 21, 7
- d) Write a control abstraction for subset paradigm using greedy method.

Q.3 Attempt any One: **08**

- a) Explain time and space complexity of an algorithm with examples in detail.
- b) Find optimal merge pattern for the file of length:
28, 32, 12, 5, 84, 53, 91, 35, 3, 11

Q.4 Explain Knapsack problem with following example. Find an optimal solution to the, knapsack problem with
N=3, m=20, (p₁, p₂, p₃) = (25, 24, 15) (w₁, w₂, w₃) = (18, 15, 10)

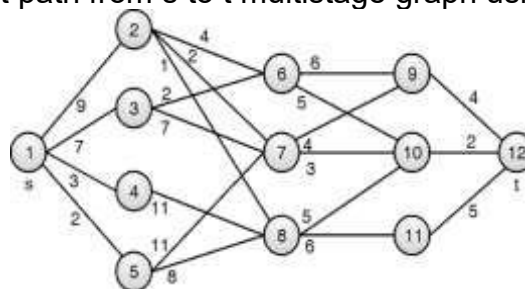
Section – II

Q.5 Attempt any Three: **12**

- a) Explain Hamilton cycle with example.
- b) Differentiate between tractable and intractable problem.
- c) Explain halting problem.
- d) Generate the set S_i, 0 ≤ i ≤ 3, for following knapsack instance with
n = 3, (p₁, p₂, p₃) = (1, 2, 5) and (w₁, w₂, w₃) = (2, 3, 4) and m = 6.
Find optimal solution using dynamic programming.

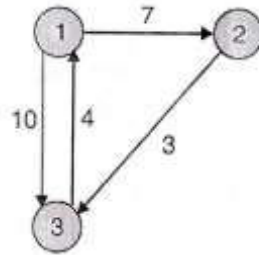
Q.6 Attempt any One: **08**

- a) Find minimum cost path from s to t multistage graph using forward approach.



- b) Write note on:
 - i) Graph Coloring
 - ii) P, NP, NP-Complete

Q.7 Find all pair shortest path using Dynamic programming.



- 8) The complexity of Binary search algorithm is _____.
- a) $O(n)$
 - b) $O(\log n)$
 - c) $O(n^2)$
 - d) $O(\log n^2)$
- 9) Dijkstra's Algorithm cannot be applied on _____.
- a) Directed and weighted graphs
 - b) Graphs having negative weight function
 - c) Unweighted graphs
 - d) Undirected and unweighted graphs
- 10) You are given a knapsack that can carry a maximum weight of 60. There are 4 items with weights {20, 30, 40, 70} and values {70, 80, 90, 200}. What is the maximum value of the items you can carry using the 0/1 knapsack?
- a) 160
 - b) 200
 - c) 170
 - d) 90
- 11) Floyd Warshall's Algorithm is used for solving _____.
- a) All pair shortest path problems
 - b) Single Source shortest path problems
 - c) Network flow problems
 - d) Sorting problems
- 12) The traveling salesman problem involves visiting each city how many times?
- a) 0
 - b) 1
 - c) 2
 - d) 3
- 13) Which of the problems cannot be solved by backtracking method?
- a) n-queen problem
 - b) subset sum problem
 - c) Hamiltonian circuit problem
 - d) travelling salesman problem
- 14) Backtracking algorithm is implemented by constructing a tree of choices called as _____.
- a) State-space tree
 - b) State-chart tree
 - c) Node tree
 - d) Backtracking tree

Seat
No.

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Design and Analysis of Algorithm (BTN03504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Attempt any Three: 12**

- Define algorithm, State different criteria for algorithms.
- Write a short note on binary search and explain recursive binary search algorithm.
- Sort the following sequence using merge sort
38, 27, 43, 3, 9, 82, 10, 15, 21, 7
- Write a control abstraction for subset paradigm using greedy method.

Q.3 Attempt any One: 08

- Explain time and space complexity of an algorithm with examples in detail.
- Find optimal merge pattern for the file of length:
28, 32, 12, 5, 84, 53, 91, 35, 3, 11

Q.4 Explain Knapsack problem with following example. Find an optimal solution to the, knapsack problem with 08

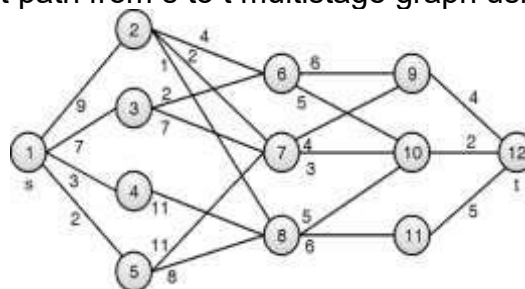
$N=3, m=20, (p_1, p_2, p_3) = (25, 24, 15) (w_1, w_2, w_3) = (18, 15, 10)$

Section – II**Q.5 Attempt any Three: 12**

- Explain Hamilton cycle with example.
- Differentiate between tractable and intractable problem.
- Explain halting problem.
- Generate the set $S_i, 0 \leq i \leq 3$, for following knapsack instance with $n = 3, (p_1, p_2, p_3) = (1, 2, 5)$ and $(w_1, w_2, w_3) = (2, 3, 4)$ and $m = 6$. Find optimal solution using dynamic programming.

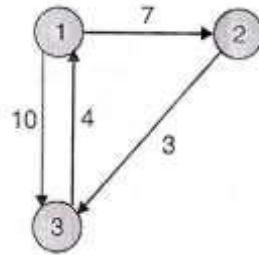
Q.6 Attempt any One: 08

- Find minimum cost path from s to t multistage graph using forward approach.



- Write note on:
 - Graph Coloring
 - P, NP, NP-Complete

Q.7 Find all pair shortest path using Dynamic programming.



Seat No.	
----------	--

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Design and Analysis of Algorithm (BTN03504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) You are given a knapsack that can carry a maximum weight of 60. There are 4 items with weights {20, 30, 40, 70} and values {70, 80, 90, 200}. What is the maximum value of the items you can carry using the 0/1 knapsack?

a) 160	b) 200
c) 170	d) 90
- 2) Floyd Warshall's Algorithm is used for solving _____.
 - a) All pair shortest path problems
 - b) Single Source shortest path problems
 - c) Network flow problems
 - d) Sorting problems
- 3) The traveling salesman problem involves visiting each city how many times?

a) 0	b) 1
c) 2	d) 3
- 4) Which of the problems cannot be solved by backtracking method?

a) n-queen problem	b) subset sum problem
c) Hamiltonian circuit problem	d) travelling salesman problem
- 5) Backtracking algorithm is implemented by constructing a tree of choices called as _____.

a) State-space tree	b) State-chart tree
c) Node tree	d) Backtracking tree
- 6) The problem of placing n queens in a chessboard such that no two queens attack each other is called as _____.

a) n-queen problem	b) eight queens puzzle
c) four queens puzzle	d) 1-queen problem
- 7) Problems that can be solved in polynomial time are known as _____.

a) Intractable	b) Tractable
c) Decision	d) Complete

- 8) Halting problem is an example for _____.
a) decidable problem b) undecidable problem
c) complete problem d) trackable problem
- 9) Which of the following is/are property/properties of a dynamic programming problem?
a) Evolutionary Approach
b) Require More Time
c) Optimal Substructure & Overlapping Subproblems
d) Greedy Approach
- 10) If for an algorithm time complexity is given by $O(1)$ then complexity of it is _____.
a) Constant b) Polynomial
c) Exponential d) None of the mentioned
- 11) An algorithm is _____.
a) A piece of code to be execute
b) A loosely written code to make final code
c) A step by step procedure to solve problem
d) All of the above
- 12) An algorithm that calls itself directly or indirectly is known as _____.
a) Sub algorithm b) Recursion
c) Polish notation d) Traversal algorithm
- 13) The complexity of Binary search algorithm is _____.
a) $O(n)$ b) $O(\log n)$
c) $O(n^2)$ d) $O(\log n^2)$
- 14) Dijkstra's Algorithm cannot be applied on _____.
a) Directed and weighted graphs
b) Graphs having negative weight function
c) Unweighted graphs
d) Undirected and unweighted graphs

Seat No.	
----------	--

Set **S**

T.Y. (B Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Design and Analysis of Algorithm (BTN03504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Attempt any Three: 12**

- Define algorithm, State different criteria for algorithms.
- Write a short note on binary search and explain recursive binary search algorithm.
- Sort the following sequence using merge sort
38, 27, 43, 3, 9, 82, 10, 15, 21, 7
- Write a control abstraction for subset paradigm using greedy method.

Q.3 Attempt any One: 08

- Explain time and space complexity of an algorithm with examples in detail.
- Find optimal merge pattern for the file of length:
28, 32, 12, 5, 84, 53, 91, 35, 3, 11

Q.4 Explain Knapsack problem with following example. Find an optimal solution to the, knapsack problem with 08

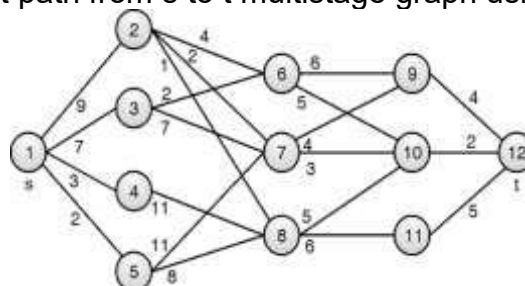
$N=3, m=20, (p_1, p_2, p_3) = (25, 24, 15) (w_1, w_2, w_3) = (18, 15, 10)$

Section – II**Q.5 Attempt any Three: 12**

- Explain Hamilton cycle with example.
- Differentiate between tractable and intractable problem.
- Explain halting problem.
- Generate the set $S_i, 0 \leq i \leq 3$, for following knapsack instance with $n = 3, (p_1, p_2, p_3) = (1, 2, 5)$ and $(w_1, w_2, w_3) = (2, 3, 4)$ and $m = 6$. Find optimal solution using dynamic programming.

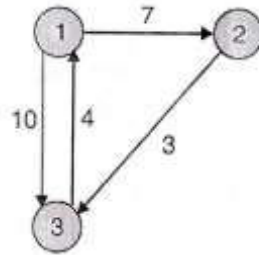
Q.6 Attempt any One: 08

- Find minimum cost path from s to t multistage graph using forward approach.



- Write note on:
 - Graph Coloring
 - P, NP, NP-Complete

Q.7 Find all pair shortest path using Dynamic programming.



Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) _____ is all about making decisions sequentially.
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) None of these
- 2) _____ Reinforcement is defined as when an event, occurs due to a particular behavior.
 - a) Negative
 - b) Positive
 - c) Neutral
 - d) None of these
- 3) In reinforcement learning current situation of agent is called _____.
 - a) Action
 - b) State
 - c) Reward
 - d) Signal
- 4) Temporal Difference Learning in machine learning is a method to learn how to predict a quantity that depends on _____ of a given signal.
 - a) Past values
 - b) Future values
 - c) Current values
 - d) All of the above
- 5) The model with possibility with their probabilities is called _____.
 - a) Distribution model
 - b) Sample model
 - c) Environment
 - d) Planned model
- 6) The learner and decision maker is called _____.
 - a) Agent
 - b) Environment
 - c) State
 - d) Model
- 7) In MDP future state depends on _____.
 - a) Current state
 - b) Past state
 - c) Future and Past state
 - d) None of the above
- 8) Return in a some over a finite number of terms is called _____.
 - a) Continuous task
 - b) Episodic task
 - c) Reward
 - d) Goal

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain elements of reinforcement learning with diagram.
 - b) Explain Epsilon greedy method in detail.
 - c) Explain returns and episodes in detail.
 - d) What is MDP? Explain its tuples.
 - e) Explain exploration and exploitation dilemma in reinforcement learning.
- Q.3 Attempt the following. (Any Two) 12**
- a) Explain the of K-armed bandit problem with example
 - b) Explain 10 armed test bed in detail with diagram.
 - c) Explain agent-environment interface in detail.

Section – II

- Q.4 Attempt the following. (Any Four) 16**
- a) Explain value iteration method in detail.
 - b) Explain value iteration method.
 - c) Explain policy evaluation in detail.
 - d) Describe optimality of TD (0).
 - e) Explain Asynchronous dynamic programming in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) Derive the bellman equation to find optimal policy and optimal value function.
 - b) Explain in detail SARSA: On policy TD control.
 - c) Explain models and planning in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Return in a some over a finite number of terms is called _____.
 - a) Continuous task
 - b) Episodic task
 - c) Reward
 - d) Goal
- 2) Sum of the reward sequence is defined by _____.
 - a) G_t
 - b) q^*
 - c) $V(A_t)$
 - d) None of these
- 3) Return is the _____.
 - a) Sum of tasks
 - b) Sum of rewards
 - c) Sum of action
 - d) Sum of state
- 4) Value function takes an account of _____ state and reward.
 - a) Future
 - b) Past
 - c) Current
 - d) None of these
- 5) Which of the following is/are property/properties of a dynamic programming problem?
 - a) Optimal substructure
 - b) Overlapping sub problems
 - c) Greedy approach
 - d) Both optimal substructure and Overlapping sub problems
- 6) TD learning is a combination of _____.
 - a) Monte Carlo and dynamic programming
 - b) MDP and Monte Carlo
 - c) MDP and Dynamic programming
 - d) All of these
- 7) Prioritized sweeping is a _____ technique.
 - a) Model based
 - b) Model free
 - c) Sample based
 - d) Experienced
- 8) _____ is all about making decisions sequentially.
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) None of these

- 9) _____ Reinforcement is defined as when an event, occurs due to a particular behavior.
- a) Negative
 - b) Positive
 - c) Neutral
 - d) None of these
- 10) In reinforcement learning current situation of agent is called _____.
- a) Action
 - b) State
 - c) Reward
 - d) Signal
- 11) Temporal Difference Learning in machine learning is a method to learn how to predict a quantity that depends on _____ of a given signal.
- a) Past values
 - b) Future values
 - c) Current values
 - d) All of the above
- 12) The model with possibility with their probabilities is called _____.
- a) Distribution model
 - b) Sample model
 - c) Environment
 - d) Planned model
- 13) The learner and decision maker is called _____.
- a) Agent
 - b) Environment
 - c) State
 - d) Model
- 14) In MDP future state depends on _____.
- a) Current state
 - b) Past state
 - c) Future and Past state
 - d) None of the above

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain elements of reinforcement learning with diagram.
 - b) Explain Epsilon greedy method in detail.
 - c) Explain returns and episodes in detail.
 - d) What is MDP? Explain its tuples.
 - e) Explain exploration and exploitation dilemma in reinforcement learning.
- Q.3 Attempt the following. (Any Two) 12**
- a) Explain the of K-armed bandit problem with example
 - b) Explain 10 armed test bed in detail with diagram.
 - c) Explain agent-environment interface in detail.

Section – II

- Q.4 Attempt the following. (Any Four) 16**
- a) Explain value iteration method in detail.
 - b) Explain value iteration method.
 - c) Explain policy evaluation in detail.
 - d) Describe optimality of TD (0).
 - e) Explain Asynchronous dynamic programming in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) Derive the bellman equation to find optimal policy and optimal value function.
 - b) Explain in detail SARSA: On policy TD control.
 - c) Explain models and planning in detail.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Value function takes an account of _____ state and reward.
 - a) Future
 - b) Past
 - c) Current
 - d) None of these
- 2) Which of the following is/are property/properties of a dynamic programming problem?
 - a) Optimal substructure
 - b) Overlapping sub problems
 - c) Greedy approach
 - d) Both optimal substructure and Overlapping sub problems
- 3) TD learning is a combination of _____.
 - a) Monte Carlo and dynamic programming
 - b) MDP and Monte Carlo
 - c) MDP and Dynamic programming
 - d) All of these
- 4) Prioritized sweeping is a _____ technique.
 - a) Model based
 - b) Model free
 - c) Sample based
 - d) Experienced
- 5) _____ is all about making decisions sequentially.
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) None of these
- 6) _____ Reinforcement is defined as when an event, occurs due to a particular behavior.
 - a) Negative
 - b) Positive
 - c) Neutral
 - d) None of these
- 7) In reinforcement learning current situation of agent is called _____.
 - a) Action
 - b) State
 - c) Reward
 - d) Signal

- 8) Temporal Difference Learning in machine learning is a method to learn how to predict a quantity that depends on _____ of a given signal.
- a) Past values
 - b) Future values
 - c) Current values
 - d) All of the above
- 9) The model with possibility with their probabilities is called _____.
- a) Distribution model
 - b) Sample model
 - c) Environment
 - d) Planned model
- 10) The learner and decision maker is called _____.
- a) Agent
 - b) Environment
 - c) State
 - d) Model
- 11) In MDP future state depends on _____.
- a) Current state
 - b) Past state
 - c) Future and Past state
 - d) None of the above
- 12) Return in a some over a finite number of terms is called _____.
- a) Continuous task
 - b) Episodic task
 - c) Reward
 - d) Goal
- 13) Sum of the reward sequence is defined by _____.
- a) G_t
 - b) q^*
 - c) $V(A_t)$
 - d) None of these
- 14) Return is the _____.
- a) Sum of tasks
 - b) Sum of rewards
 - c) Sum of action
 - d) Sum of state

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain elements of reinforcement learning with diagram.
 - b) Explain Epsilon greedy method in detail.
 - c) Explain returns and episodes in detail.
 - d) What is MDP? Explain its tuples.
 - e) Explain exploration and exploitation dilemma in reinforcement learning.
- Q.3 Attempt the following. (Any Two) 12**
- a) Explain the of K-armed bandit problem with example
 - b) Explain 10 armed test bed in detail with diagram.
 - c) Explain agent-environment interface in detail.

Section – II

- Q.4 Attempt the following. (Any Four) 16**
- a) Explain value iteration method in detail.
 - b) Explain value iteration method.
 - c) Explain policy evaluation in detail.
 - d) Describe optimality of TD (0).
 - e) Explain Asynchronous dynamic programming in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) Derive the bellman equation to find optimal policy and optimal value function.
 - b) Explain in detail SARSA: On policy TD control.
 - c) Explain models and planning in detail.

- 9) Prioritized sweeping is a _____ technique.
- a) Model based
 - b) Model free
 - c) Sample based
 - d) Experienced
- 10) _____ is all about making decisions sequentially.
- a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) None of these
- 11) _____ Reinforcement is defined as when an event, occurs due to a particular behavior.
- a) Negative
 - b) Positive
 - c) Neutral
 - d) None of these
- 12) In reinforcement learning current situation of agent is called _____.
- a) Action
 - b) State
 - c) Reward
 - d) Signal
- 13) Temporal Difference Learning in machine learning is a method to learn how to predict a quantity that depends on _____ of a given signal.
- a) Past values
 - b) Future values
 - c) Current values
 - d) All of the above
- 14) The model with possibility with their probabilities is called _____.
- a) Distribution model
 - b) Sample model
 - c) Environment
 - d) Planned model

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Reinforcement Learning (BTN03512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain elements of reinforcement learning with diagram.
 - b) Explain Epsilon greedy method in detail.
 - c) Explain returns and episodes in detail.
 - d) What is MDP? Explain its tuples.
 - e) Explain exploration and exploitation dilemma in reinforcement learning.
- Q.3 Attempt the following. (Any Two) 12**
- a) Explain the of K-armed bandit problem with example
 - b) Explain 10 armed test bed in detail with diagram.
 - c) Explain agent-environment interface in detail.

Section – II

- Q.4 Attempt the following. (Any Four) 16**
- a) Explain value iteration method in detail.
 - b) Explain value iteration method.
 - c) Explain policy evaluation in detail.
 - d) Describe optimality of TD (0).
 - e) Explain Asynchronous dynamic programming in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) Derive the bellman equation to find optimal policy and optimal value function.
 - b) Explain in detail SARSA: On policy TD control.
 - c) Explain models and planning in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) How to handle the missing values in the dataset?
 - a) dropping the missing rows & columns
 - b) Replace with some values
 - c) Compute with mean/mode/median value
 - d) All of above
- 2) Which of the following is true about outliers?
 - a) Data points that deviate a lot from normal
 - b) can reduce the accuracy of model
 - c) a & b
 - d) None of these
- 3) What are the different types of variables?

a) Nominal	b) Ordinal
c) Quantitative	d) All of above
- 4) Data that summarize all observations in a category are called _____ data.

a) frequency	b) summarized
c) raw	d) none of these
- 5) What is the meaning of Mean?

a) average	b) sum
c) difference	d) none of these
- 6) Metrics to measure Central Tendency _____.

a) Mean	b) Mode
c) Median	d) All of above
- 7) What does NumPy stand for?

a) Numerical Python	b) Natural Python
c) Numeric Program	d) Nonlinear Python
- 8) Which of the following is used to find the indices of the maximum and minimum elements in a NumPy array?

a) argmax() and argmin()	b) max() and min()
c) amax() and amin()	d) None of these

- 9) `import numpy as np`
`a = np.array([[1, 2], [3, 4]])`
`print(a.ndim)`
a) 0
b) 1
c) 2
d) 3
- 10) Dataframe object is value mutable.
a) True
b) False
- 11) Amongst which of the following is / are not correct to access individual item from dataframe 'df'.
a) `df.iat[2,2]`
b) `df.loc[2,2]`
c) `df.at[2,2]`
d) `df[0,0]`
- 12) Which of the following library is used to plot the graph in python?
a) Numpy
b) Pandas
c) Matplotlib
d) All of above
- 13) Which is the correct command to install Matplotlib?
a) `pip install matplotlib`
b) `pip install matplotlib.pz`
c) `pip install matplotlib.*`
d) All of the above
- 14) Which function is used to create a histogram in Seaborn?
a) `sns.lineplot()`
b) `sns.scatterplot()`
c) `sns.histplot()`
d) `sns.barplot()`

Seat No.	
----------	--

Set	P
-----	---

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt the following (Any Three) 12**
- a) What are the Different types of Variable?
 - b) Explain the types of Hypothesis with example.
 - c) What is Scatter plot? Draw the Positive and Negative relationship.
 - d) Define the terms ndim, shape, size, dtype with syntax.

- Q.3 Attempt the following (Any Two) 16**
- a) What are the Metrics of Central Tendency with example
 - b) How to convert text to numbers and numbers to text with example.
 - c) From the given array: `array([0,1,2,3,4,5,6,7,8,9])` Write a Python code for
 - 1) Display first five element
 - 2) Element after index 5
 - 3) Middle subarray
 - 4) Display last 2 element
 - 5) Display only even element
 - 6) Display only odd elements

Section – II

- Q.4 Attempt the following (Any Three). 12**
- a) Explain the operations on data in pandas in detail.
 - b) How to handle missing values in Pandas, explain with example.
 - c) What is Data Visualization, identify the design principles of data visualization.
 - d) Define Matplotlib and List out the libraries for plotting the graph, explain any one in detail with syntax.

- Q.5 Answer the following (Any Two) 16**
- a) What are the steps to combine dataset using append, concat & Merge, join in pandas.
 - b) Explain Different types of operations on string in pandas.
 - c) Write the Python code to draw the Bar Chart, Histogram using Matplotlib and Seaborn.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following is used to find the indices of the maximum and minimum elements in a NumPy array?
 - a) `argmax()` and `argmin()`
 - b) `max()` and `min()`
 - c) `amax()` and `amin()`
 - d) None of these
- 2) `import numpy as np`
`a = np.array([[1, 2], [3, 4]])`
`print(a.ndim)`
 - a) 0
 - b) 1
 - c) 2
 - d) 3
- 3) Dataframe object is value mutable.
 - a) True
 - b) False
- 4) Amongst which of the following is / are not correct to access individual item from dataframe 'df'.
 - a) `df.iat[2,2]`
 - b) `df.loc[2,2]`
 - c) `df.at[2,2]`
 - d) `df[0,0]`
- 5) Which of the following library is used to plot the graph in python?
 - a) Numpy
 - b) Pandas
 - c) Matplotlib
 - d) All of above
- 6) Which is the correct command to install Matplotlib?
 - a) `pip install matplotlib`
 - b) `pip install matplotlib.pz`
 - c) `pip install matplotlib.*`
 - d) All of the above
- 7) Which function is used to create a histogram in Seaborn?
 - a) `sns.lineplot()`
 - b) `sns.scatterplot()`
 - c) `sns.histplot()`
 - d) `sns.barplot()`
- 8) How to handle the missing values in the dataset?
 - a) dropping the missing rows & columns
 - b) Replace with some values
 - c) Compute with mean/mode/median value
 - d) All of above

- 9) Which of the following is true about outliers?
- a) Data points that deviate a lot from normal
 - b) can reduce the accuracy of model
 - c) a & b
 - d) None of these
- 10) What are the different types of variables?
- a) Nominal
 - b) Ordinal
 - c) Quantitative
 - d) All of above
- 11) Data that summarize all observations in a category are called _____ data.
- a) frequency
 - b) summarized
 - c) raw
 - d) none of these
- 12) What is the meaning of Mean?
- a) average
 - b) sum
 - c) difference
 - d) none of these
- 13) Metrics to measure Central Tendency _____.
- a) Mean
 - b) Mode
 - c) Median
 - d) All of above
- 14) What does NumPy stand for?
- a) Numerical Python
 - b) Natural Python
 - c) Numeric Program
 - d) Nonlinear Python

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following (Any Three) 12

- a) What are the Different types of Variable?
- b) Explain the types of Hypothesis with example.
- c) What is Scatter plot? Draw the Positive and Negative relationship.
- d) Define the terms ndim, shape, size, dtype with syntax.

Q.3 Attempt the following (Any Two) 16

- a) What are the Metrics of Central Tendency with example
- b) How to convert text to numbers and numbers to text with example.
- c) From the given array: array([0,1,2,3,4,5,6,7,8,9]) Write a Python code for
 - 1) Display first five element
 - 2) Element after index 5
 - 3) Middle subarray
 - 4) Display last 2 element
 - 5) Display only even element
 - 6) Display only odd elements

Section – II

Q.4 Attempt the following (Any Three). 12

- a) Explain the operations on data in pandas in detail.
- b) How to handle missing values in Pandas, explain with example.
- c) What is Data Visualization, identify the design principles of data visualization.
- d) Define Matplotlib and List out the libraries for plotting the graph, explain any one in detail with syntax.

Q.5 Answer the following (Any Two) 16

- a) What are the steps to combine dataset using append, concat & Merge, join in pandas.
- b) Explain Different types of operations on string in pandas.
- c) Write the Python code to draw the Bar Chart, Histogram using Matplotlib and Seaborn.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Amongst which of the following is / are not correct to access individual item from dataframe 'df'.

a) df.iat[2,2]	b) df.loc[2,2]
c) df.at[2,2]	d) df[0,0]
- 2) Which of the following library is used to plot the graph in python?

a) Numpy	b) Pandas
c) Matplotlib	d) All of above
- 3) Which is the correct command to install Matplotlib?

a) pip install matplotlib	b) pip install matplotlib.pz
c) pip install matplotlib.*	d) All of the above
- 4) Which function is used to create a histogram in Seaborn?

a) sns.lineplot()	b) sns.scatterplot()
c) sns.histplot()	d) sns.barplot()
- 5) How to handle the missing values in the dataset?
 - a) dropping the missing rows & columns
 - b) Replace with some values
 - c) Compute with mean/mode/median value
 - d) All of above
- 6) Which of the following is true about outliers?
 - a) Data points that deviate a lot from normal
 - b) can reduce the accuracy of model
 - c) a & b
 - d) None of these
- 7) What are the different types of variables?

a) Nominal	b) Ordinal
c) Quantitative	d) All of above
- 8) Data that summarize all observations in a category are called _____ data.

a) frequency	b) summarized
c) raw	d) none of these

- 9) What is the meaning of Mean?
a) average
b) sum
c) difference
d) none of these
- 10) Metrics to measure Central Tendency _____.
a) Mean
b) Mode
c) Median
d) All of above
- 11) What does NumPy stand for?
a) Numerical Python
b) Natural Python
c) Numeric Program
d) Nonlinear Python
- 12) Which of the following is used to find the indices of the maximum and minimum elements in a NumPy array?
a) argmax() and argmin()
b) max() and min()
c) amax() and amin()
d) None of these
- 13) `import numpy as np`
`a = np.array([[1, 2], [3, 4]])`
`print(a.ndim)`
a) 0
b) 1
c) 2
d) 3
- 14) Dataframe object is value mutable.
a) True
b) False

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following (Any Three) 12

- a) What are the Different types of Variable?
- b) Explain the types of Hypothesis with example.
- c) What is Scatter plot? Draw the Positive and Negative relationship.
- d) Define the terms ndim, shape, size, dtype with syntax.

Q.3 Attempt the following (Any Two) 16

- a) What are the Metrics of Central Tendency with example
- b) How to convert text to numbers and numbers to text with example.
- c) From the given array: array([0,1,2,3,4,5,6,7,8,9]) Write a Python code for
 - 1) Display first five element
 - 2) Element after index 5
 - 3) Middle subarray
 - 4) Display last 2 element
 - 5) Display only even element
 - 6) Display only odd elements

Section – II

Q.4 Attempt the following (Any Three). 12

- a) Explain the operations on data in pandas in detail.
- b) How to handle missing values in Pandas, explain with example.
- c) What is Data Visualization, identify the design principles of data visualization.
- d) Define Matplotlib and List out the libraries for plotting the graph, explain any one in detail with syntax.

Q.5 Answer the following (Any Two) 16

- a) What are the steps to combine dataset using append, concat & Merge, join in pandas.
- b) Explain Different types of operations on string in pandas.
- c) Write the Python code to draw the Bar Chart, Histogram using Matplotlib and Seaborn.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Data Preprocessing & Visualization (BTN03513)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt the following (Any Three) 12

- a) What are the Different types of Variable?
- b) Explain the types of Hypothesis with example.
- c) What is Scatter plot? Draw the Positive and Negative relationship.
- d) Define the terms ndim, shape, size, dtype with syntax.

Q.3 Attempt the following (Any Two) 16

- a) What are the Metrics of Central Tendency with example
- b) How to convert text to numbers and numbers to text with example.
- c) From the given array: array([0,1,2,3,4,5,6,7,8,9]) Write a Python code for
 - 1) Display first five element
 - 2) Element after index 5
 - 3) Middle subarray
 - 4) Display last 2 element
 - 5) Display only even element
 - 6) Display only odd elements

Section – II

Q.4 Attempt the following (Any Three). 12

- a) Explain the operations on data in pandas in detail.
- b) How to handle missing values in Pandas, explain with example.
- c) What is Data Visualization, identify the design principles of data visualization.
- d) Define Matplotlib and List out the libraries for plotting the graph, explain any one in detail with syntax.

Q.5 Answer the following (Any Two) 16

- a) What are the steps to combine dataset using append, concat & Merge, join in pandas.
- b) Explain Different types of operations on string in pandas.
- c) Write the Python code to draw the Bar Chart, Histogram using Matplotlib and Seaborn.

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 3) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.

a) The behavior of firms	b) The activities of individual units
c) Economic aggregates	d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?

a) owning the only licensed taxicab in town	b) the United States Postal Service
c) ownership of the only ferry across Puget Sound for twenty miles	d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA

- 8) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9) Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10) _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.
 - a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy
- 6) Who gives a welfare definition of economics?
 - a) Adam Smith
 - b) Alfred Marshall
 - c) Lionel Robbins
 - d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.
 - a) General equilibrium
 - b) Partial equilibrium
 - c) Zero equilibrium
 - d) Pareto efficiency

- 8)** Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9)** Macroeconomic theory deals with _____.
- | | |
|--------------------------|---------------------------------------------|
| a) The behavior of firms | b) The activities of individual units |
| c) Economic aggregates | d) The behavior of the electronics industry |
- 10)** Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 3) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 5) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly

- 8) Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9) Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.

a) Increase	b) Decrease
c) No change	d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

Set

S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Economics (BTN03506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN03507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?

a) 35 years	b) 25 years
c) 20 years	d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.

a) Ethical value	b) Moral value
c) Social value	d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 4) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 5) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 6) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 7) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights

- 8) In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9) The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10) All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN03507)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN03507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN03507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

- 8) In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9) Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10) In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

Set R

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN03507)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN03507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 2) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights
- 6) In which article is intellectual property rights outlined?

a) Article 15	b) Article 27
c) Article 13	d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.

a) 1856	b) 1880
c) 1905	d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN03507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 2) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 3) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 4) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 5) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 6) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 7) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 8) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 9) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 2) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 3) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 4) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 5) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 6) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber
- 7) Which of the following is a community?
 - a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers
- 8) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 9) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 2) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 3) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 4) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 5) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 6) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 7) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 8) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 9) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Introduction to Sociology (BTN03508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task

- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

- 3) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above

- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

- 6) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above

- 7) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above

- 8) Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 7) Aches, shallow breathing and sweating, frequent colds are _____.
a) Physical symptoms of stress
b) Behavioral symptoms of stress
c) Emotional symptoms of stress
d) Cognitive symptoms of stress
- 8) Anxiety can cause the following moods _____.
a) Irritable
b) Nervous
c) Anxious
d) All of the above
- 9) Which of the following are the physical symptoms of anxiety?
a) Racing heart
b) Sweaty palms
c) Flushed cheeks
d) All of the above
- 10) Which of the following is true about 'deep breathing relaxation technique'?
a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Stress and Coping (BTN03509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **P**

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 2) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 3) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 4) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 5) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 6) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 7) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 8) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 2) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 3) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 4) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 5) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 6) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 7) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 8) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these

- 9)** Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10)** Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

- 8) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9) Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10) One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Professional Ethics & Human Value (BTN03510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 **Write short notes on any four.** **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Software implementation using PL introduces a new domain called _____.
 a) Application Domain b) PL Domain
 c) Execution Domain d) Program generator Domain
- 2) In an absolute loading scheme, which loader function is accomplished by loader?
 a) Reallocation b) Allocation
 c) Linking d) Loading
- 3) A compiler is any language translator which is not an _____.
 a) preprocessor b) language migratory
 c) detranslator d) assembler
- 4) Forward reference table (FRT) is arranged like?
 a) Stack b) Queue
 c) Linked list d) Double lined list
- 5) Yaac is a second phase of compiler which generates _____ parser.
 a) LRLA b) LALR
 c) Pass 2 d) Pass 1
- 6) A _____ is a software which bridges a specification or execution gap.
 a) Semantic gap b) Linker
 c) Language Processor d) Loader
- 7) Instructions which won't appear in the object program are called as _____.
 a) Redundant instructions b) Exceptions
 c) Comments d) Assembler Directives
- 8) Type-2 grammar is known as _____.
 a) Context free grammar b) Phase structure grammar
 c) Context Sensitive grammar d) None of the above
- 9) The expansion of nested macro calls follows _____.
 a) FIFO rule b) LIFO rule
 c) LILO rule d) priority rule

- 10) The translator which perform macro expansion is called a _____.
- a) Macro processor
 - b) Macro pre-processor
 - c) Micro pre-processor
 - d) assembler
- 11) _____ is a popular intermediate code in non-optimizing compilers.
- a) Triples and quadruples
 - b) Indirect triple
 - c) Parse tree
 - d) Postfix string
- 12) A grammar that produces more than one parse tree for some sentence is called as _____.
- a) Ambiguous
 - b) Unambiguous
 - c) Regular
 - d) All of these
- 13) Storage mapping is done by _____.
- a) OS
 - b) Compiler
 - c) Linker
 - d) Loader
- 14) Which of the following system software always resides in the main memory?
- a) Text Editor
 - b) Assembler
 - c) Linker
 - d) Loader

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any three **12**
a) Explain A simple assembly scheme in detail.
b) Explain design of a two pass assembler in detail.
c) Explain Language processor development tools in detail.
d) Explain Design of Macro preprocessor in detail.

Q.3 Answer any two. **16**
a) Explain Elements of assembly language programming in detail.
b) Define Macro and Macro call. Explain Micro Expansion in detail.
c) Explain Fundamentals of Language Processing.

Section – II

Q.4 Attempt any three. **12**
a) Explain Static and dynamic memory allocation.
b) Explain design of a linker in detail.
c) Explain Absolute loader in detail.
d) Explain Memory allocation in block structured languages.

Q.5 Answer any two. **16**
a) Explain Design of direct linking loader in detail.
b) Explain Self-relocating programs in detail.
c) Explain General loader scheme in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Type-2 grammar is known as _____.
 a) Context free grammar b) Phase structure grammar
 c) Context Sensitive grammar d) None of the above
- 2) The expansion of nested macro calls follows _____.
 a) FIFO rule b) LIFO rule
 c) LIFO rule d) priority rule
- 3) The translator which perform macro expansion is called a _____.
 a) Macro processor b) Macro pre-processor
 c) Micro pre-processor d) assembler
- 4) _____ is a popular intermediate code in non-optimizing compilers.
 a) Triples and quadruples b) Indirect triple
 c) Parse tree d) Postfix string
- 5) A grammar that produces more than one parse tree for some sentence is called as _____.
 a) Ambiguous b) Unambiguous
 c) Regular d) All of these
- 6) Storage mapping is done by _____.
 a) OS b) Compiler
 c) Linker d) Loader
- 7) Which of the following system software always resides in the main memory?
 a) Text Editor b) Assembler
 c) Linker d) Loader
- 8) Software implementation using PL introduces a new domain called _____.
 a) Application Domain b) PL Domain
 c) Execution Domain d) Program generator Domain
- 9) In an absolute loading scheme, which loader function is accomplished by loader?
 a) Reallocation b) Allocation
 c) Linking d) Loading

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) Explain A simple assembly scheme in detail.
 - b) Explain design of a two pass assembler in detail.
 - c) Explain Language processor development tools in detail.
 - d) Explain Design of Macro preprocessor in detail.
- Q.3 Answer any two.** **16**
- a) Explain Elements of assembly language programming in detail.
 - b) Define Macro and Macro call. Explain Micro Expansion in detail.
 - c) Explain Fundamentals of Language Processing.

Section – II

- Q.4 Attempt any three.** **12**
- a) Explain Static and dynamic memory allocation.
 - b) Explain design of a linker in detail.
 - c) Explain Absolute loader in detail.
 - d) Explain Memory allocation in block structured languages.
- Q.5 Answer any two.** **16**
- a) Explain Design of direct linking loader in detail.
 - b) Explain Self-relocating programs in detail.
 - c) Explain General loader scheme in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is a popular intermediate code in non-optimizing compilers.
 - a) Triples and quadruples
 - b) Indirect triple
 - c) Parse tree
 - d) Postfix string
- 2) A grammar that produces more than one parse tree for some sentence is called as _____.
 - a) Ambiguous
 - b) Unambiguous
 - c) Regular
 - d) All of these
- 3) Storage mapping is done by _____.
 - a) OS
 - b) Compiler
 - c) Linker
 - d) Loader
- 4) Which of the following system software always resides in the main memory?
 - a) Text Editor
 - b) Assembler
 - c) Linker
 - d) Loader
- 5) Software implementation using PL introduces a new domain called _____.
 - a) Application Domain
 - b) PL Domain
 - c) Execution Domain
 - d) Program generator Domain
- 6) In an absolute loading scheme, which loader function is accomplished by loader?
 - a) Reallocation
 - b) Allocation
 - c) Linking
 - d) Loading
- 7) A compiler is any language translator which is not an _____.
 - a) preprocessor
 - b) language migratory
 - c) detranslator
 - d) assembler
- 8) Forward reference table (FRT) is arranged like?
 - a) Stack
 - b) Queue
 - c) Linked list
 - d) Double lined list
- 9) Yaac is a second phase of compiler which generates _____ parser.
 - a) LRLA
 - b) LALR
 - c) Pass 2
 - d) Pass 1

- 10) A _____ is a software which bridges a specification or execution gap.
- a) Semantic gap
 - b) Linker
 - c) Language Processor
 - d) Loader
- 11) Instructions which won't appear in the object program are called as _____.
- a) Redundant instructions
 - b) Exceptions
 - c) Comments
 - d) Assembler Directives
- 12) Type-2 grammar is known as _____.
- a) Context free grammar
 - b) Phase structure grammar
 - c) Context Sensitive grammar
 - d) None of the above
- 13) The expansion of nested macro calls follows _____.
- a) FIFO rule
 - b) LIFO rule
 - c) LILO rule
 - d) priority rule
- 14) The translator which perform macro expansion is called a _____.
- a) Macro processor
 - b) Macro pre-processor
 - c) Micro pre-processor
 - d) assembler

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) Explain A simple assembly scheme in detail.
 - b) Explain design of a two pass assembler in detail.
 - c) Explain Language processor development tools in detail.
 - d) Explain Design of Macro preprocessor in detail.
- Q.3 Answer any two.** **16**
- a) Explain Elements of assembly language programming in detail.
 - b) Define Macro and Macro call. Explain Micro Expansion in detail.
 - c) Explain Fundamentals of Language Processing.

Section – II

- Q.4 Attempt any three.** **12**
- a) Explain Static and dynamic memory allocation.
 - b) Explain design of a linker in detail.
 - c) Explain Absolute loader in detail.
 - d) Explain Memory allocation in block structured languages.
- Q.5 Answer any two.** **16**
- a) Explain Design of direct linking loader in detail.
 - b) Explain Self-relocating programs in detail.
 - c) Explain General loader scheme in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A _____ is a software which bridges a specification or execution gap.
 - a) Semantic gap
 - b) Linker
 - c) Language Processor
 - d) Loader
- 2) Instructions which won't appear in the object program are called as _____.
 - a) Redundant instructions
 - b) Exceptions
 - c) Comments
 - d) Assembler Directives
- 3) Type-2 grammar is known as _____.
 - a) Context free grammar
 - b) Phase structure grammar
 - c) Context Sensitive grammar
 - d) None of the above
- 4) The expansion of nested macro calls follows _____.
 - a) FIFO rule
 - b) LIFO rule
 - c) LILO rule
 - d) priority rule
- 5) The translator which perform macro expansion is called a _____.
 - a) Macro processor
 - b) Macro pre-processor
 - c) Micro pre-processor
 - d) assembler
- 6) _____ is a popular intermediate code in non-optimizing compilers.
 - a) Triples and quadruples
 - b) Indirect triple
 - c) Parse tree
 - d) Postfix string
- 7) A grammar that produces more than one parse tree for some sentence is called as _____.
 - a) Ambiguous
 - b) Unambiguous
 - c) Regular
 - d) All of these
- 8) Storage mapping is done by _____.
 - a) OS
 - b) Compiler
 - c) Linker
 - d) Loader
- 9) Which of the following system software always resides in the main memory?
 - a) Text Editor
 - b) Assembler
 - c) Linker
 - d) Loader

- 10) Software implementation using PL introduces a new domain called _____.
a) Application Domain b) PL Domain
c) Execution Domain d) Program generator Domain
- 11) In an absolute loading scheme, which loader function is accomplished by loader?
a) Reallocation b) Allocation
c) Linking d) Loading
- 12) A compiler is any language translator which is not an _____.
a) preprocessor b) language migratory
c) detranslator d) assembler
- 13) Forward reference table (FRT) is arranged like?
a) Stack b) Queue
c) Linked list d) Double lined list
- 14) Yaac is a second phase of compiler which generates _____ parser.
a) LRLA b) LALR
c) Pass 2 d) Pass 1

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
System Programming (BTN03601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) Explain A simple assembly scheme in detail.
 - b) Explain design of a two pass assembler in detail.
 - c) Explain Language processor development tools in detail.
 - d) Explain Design of Macro preprocessor in detail.
- Q.3 Answer any two.** **16**
- a) Explain Elements of assembly language programming in detail.
 - b) Define Macro and Macro call. Explain Micro Expansion in detail.
 - c) Explain Fundamentals of Language Processing.

Section – II

- Q.4 Attempt any three.** **12**
- a) Explain Static and dynamic memory allocation.
 - b) Explain design of a linker in detail.
 - c) Explain Absolute loader in detail.
 - d) Explain Memory allocation in block structured languages.
- Q.5 Answer any two.** **16**
- a) Explain Design of direct linking loader in detail.
 - b) Explain Self-relocating programs in detail.
 - c) Explain General loader scheme in detail.

Seat No.	
----------	--

Set

P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is IoT?
 - a) network of physical objects embedded with sensors
 - b) network of virtual objects
 - c) network of objects in the ring structure
 - d) network of sensors
- 2) _____ IEEE standard is available for ethernet.
 - a) 802.11
 - b) 802.3
 - c) 802.16
 - d) 802.15
- 3) Who coined the term "Internet of Things"?
 - a) Edward Jameson
 - b) John Wright
 - c) Kevin Aston
 - d) George Garton
- 4) Which of the following is not an IoT device?
 - a) Tablet
 - b) Laptop
 - c) Arduino
 - d) Table
- 5) _____ layer is responsible for sending IP datagrams from source to destination network.
 - a) Network
 - b) Link
 - c) Transport
 - d) Applications
- 6) MQTT stands for _____.
 - a) Message Queue Transport Telemetry
 - b) Message Queue Telemetry Transport
 - c) Management Queue Transport Telemetry
 - d) Management Queue Telemetry Transport
- 7) A Level _____ IoT system has single node that performs sensing and/or actuation, stores data, performs analysis and host the application.
 - a) 3
 - b) 2
 - c) 1
 - d) 4

- 8) Device identity management means _____.
- a) identifying a device
 - b) registering a device for actions after identifying
 - c) assigning unique identify to the device
 - d) All of the options
- 9) _____ are used for sensing things and devices.
- a) Sensors
 - b) Actuators
 - c) RFID
 - d) None of these
- 10) Devices which monitors and tracks the temperature and gives temperature's measurement as an electrical signal are termed _____ sensors.
- a) optical
 - b) temperature
 - c) speed
 - d) pressure
- 11) An electric actuator uses electrical energy, is usually actuated by a motor that converts electrical energy into mechanical torque.
- a) Pneumatic Actuators
 - b) Mechanical Actuators
 - c) Electrical Actuators
 - d) All
- 12) _____ is a standards-based wireless technology developed to enable low-cost, low-power wireless machine-to-machine (M2M) and internet of things (IoT) networks.
- a) Sensor
 - b) Actuator
 - c) RFID
 - d) Zigbee
- 13) Internet of Things _____ is the special considerations required to protect the information of individuals from exposure in the IoT environment.
- a) privacy
 - b) security
 - c) protection
 - d) none of these
- 14) REST stands for _____.
- a) Representational State Transport
 - b) Representational State Transfer
 - c) Representational Side Transfer
 - d) Reserved State Transfer

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three of the following. 12

- a) What are the different characteristics of IOT?
- b) Describe layers and design standards used in IOT architecture.
- c) Describe M2M Communication used in IOT.
- d) Elaborate different types of sensors used in IOT.

Q.3 Solve any two 16

- a) Describe Physical Design of IoT and logical design of IOT.
- b) What are the different applications of IOT?
- c) What are different communication technologies used in IOT?

Section – II

Q.4 Solve any three. 12

- a) Describe constrained application protocols used in IOT.
- b) Elaborate bluetooth and its low energy profile used in IOT.
- c) How Security and Vulnerabilities applied to IOT applications
- d) Describe value creation in the IoT.

Q.5 Solve any two 16

- a) Describe representational state transfer architecture used in IOT
- b) Describe Business model and business model innovation for IoT.
- c) Elaborate IoT Privacy in detail.

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Device identity management means _____.
 - a) identifying a device
 - b) registering a device for actions after identifying
 - c) assigning unique identify to the device
 - d) All of the options
- 2) _____ are used for sensing things and devices.
 - a) Sensors
 - b) Actuators
 - c) RFID
 - d) None of these
- 3) Devices which monitors and tracks the temperature and gives temperature's measurement as an electrical signal are termed _____ sensors.
 - a) optical
 - b) temperature
 - c) speed
 - d) pressure
- 4) An electric actuator uses electrical energy, is usually actuated by a motor that converts electrical energy into mechanical torque.
 - a) Pneumatic Actuators
 - b) Mechanical Actuators
 - c) Electrical Actuators
 - d) All
- 5) _____ is a standards-based wireless technology developed to enable low-cost, low-power wireless machine-to-machine (M2M) and internet of things (IoT) networks.
 - a) Sensor
 - b) Actuator
 - c) RFID
 - d) Zigbee
- 6) Internet of Things _____ is the special considerations required to protect the information of individuals from exposure in the IoT environment.
 - a) privacy
 - b) security
 - c) protection
 - d) none of these
- 7) REST stands for _____.
 - a) Representational State Transport
 - b) Representational State Transfer
 - c) Representational Side Transfer
 - d) Reserved State Transfer

- 8) What is IoT?
- a) network of physical objects embedded with sensors
 - b) network of virtual objects
 - c) network of objects in the ring structure
 - d) network of sensors
- 9) _____ IEEE standard is available for ethernet.
- a) 802.11
 - b) 802.3
 - c) 802.16
 - d) 802.15
- 10) Who coined the term "Internet of Things"?
- a) Edward Jameson
 - b) John Wright
 - c) Kevin Aston
 - d) George Garton
- 11) Which of the following is not an IoT device?
- a) Tablet
 - b) Laptop
 - c) Arduino
 - d) Table
- 12) _____ layer is responsible for sending IP datagrams from source to destination network.
- a) Network
 - b) Link
 - c) Transport
 - d) Applications
- 13) MQTT stands for _____.
- a) Message Queue Transport Telemetry
 - b) Message Queue Telemetry Transport
 - c) Management Queue Transport Telemetry
 - d) Management Queue Telemetry Transport
- 14) A Level _____ IoT system has single node that performs sensing and/or actuation, stores data, performs analysis and host the application.
- a) 3
 - b) 2
 - c) 1
 - d) 4

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three of the following. 12

- a) What are the different characteristics of IOT?
- b) Describe layers and design standards used in IOT architecture.
- c) Describe M2M Communication used in IOT.
- d) Elaborate different types of sensors used in IOT.

Q.3 Solve any two 16

- a) Describe Physical Design of IoT and logical design of IOT.
- b) What are the different applications of IOT?
- c) What are different communication technologies used in IOT?

Section – II

Q.4 Solve any three. 12

- a) Describe constrained application protocols used in IOT.
- b) Elaborate bluetooth and its low energy profile used in IOT.
- c) How Security and Vulnerabilities applied to IOT applications
- d) Describe value creation in the IoT.

Q.5 Solve any two 16

- a) Describe representational state transfer architecture used in IOT
- b) Describe Business model and business model innovation for IoT.
- c) Elaborate IoT Privacy in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) An electric actuator uses electrical energy, is usually actuated by a motor that converts electrical energy into mechanical torque.

a) Pneumatic Actuators	b) Mechanical Actuators
c) Electrical Actuators	d) All

- 2) _____ is a standards-based wireless technology developed to enable low-cost, low-power wireless machine-to-machine (M2M) and internet of things (IoT) networks.

a) Sensor	b) Actuator
c) RFID	d) Zigbee

- 3) Internet of Things _____ is the special considerations required to protect the information of individuals from exposure in the IoT environment.

a) privacy	b) security
c) protection	d) none of these

- 4) REST stands for _____.

a) Representational State Transport	b) Representational State Transfer
c) Representational Side Transfer	d) Reserved State Transfer

- 5) What is IoT?

a) network of physical objects embedded with sensors	b) network of virtual objects
c) network of objects in the ring structure	d) network of sensors

- 6) _____ IEEE standard is available for ethernet.

a) 802.11	b) 802.3
c) 802.16	d) 802.15

- 7) Who coined the term "Internet of Things"?

a) Edward Jameson	b) John Wright
c) Kevin Aston	d) George Garton

- 8) Which of the following is not an IoT device?
- a) Tablet
 - b) Laptop
 - c) Arduino
 - d) Table
- 9) _____ layer is responsible for sending IP datagrams from source to destination network.
- a) Network
 - b) Link
 - c) Transport
 - d) Applications
- 10) MQTT stands for _____.
- a) Message Queue Transport Telemetry
 - b) Message Queue Telemetry Transport
 - c) Management Queue Transport Telemetry
 - d) Management Queue Telemetry Transport
- 11) A Level _____ IoT system has single node that performs sensing and/or actuation, stores data, performs analysis and host the application.
- a) 3
 - b) 2
 - c) 1
 - d) 4
- 12) Device identity management means _____.
- a) identifying a device
 - b) registering a device for actions after identifying
 - c) assigning unique identify to the device
 - d) All of the options
- 13) _____ are used for sensing things and devices.
- a) Sensors
 - b) Actuators
 - c) RFID
 - d) None of these
- 14) Devices which monitors and tracks the temperature and gives temperature's measurement as an electrical signal are termed _____ sensors.
- a) optical
 - b) temperature
 - c) speed
 - d) pressure

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three of the following. 12

- a) What are the different characteristics of IOT?
- b) Describe layers and design standards used in IOT architecture.
- c) Describe M2M Communication used in IOT.
- d) Elaborate different types of sensors used in IOT.

Q.3 Solve any two 16

- a) Describe Physical Design of IoT and logical design of IOT.
- b) What are the different applications of IOT?
- c) What are different communication technologies used in IOT?

Section – II

Q.4 Solve any three. 12

- a) Describe constrained application protocols used in IOT.
- b) Elaborate bluetooth and its low energy profile used in IOT.
- c) How Security and Vulnerabilities applied to IOT applications
- d) Describe value creation in the IoT.

Q.5 Solve any two 16

- a) Describe representational state transfer architecture used in IOT
- b) Describe Business model and business model innovation for IoT.
- c) Elaborate IoT Privacy in detail.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) MQTT stands for _____.
 - a) Message Queue Transport Telemetry
 - b) Message Queue Telemetry Transport
 - c) Management Queue Transport Telemetry
 - d) Management Queue Telemetry Transport
- 2) A Level _____ IoT system has single node that performs sensing and/or actuation, stores data, performs analysis and host the application.
 - a) 3
 - b) 2
 - c) 1
 - d) 4
- 3) Device identity management means _____.
 - a) identifying a device
 - b) registering a device for actions after identifying
 - c) assigning unique identify to the device
 - d) All of the options
- 4) _____ are used for sensing things and devices.
 - a) Sensors
 - b) Actuators
 - c) RFID
 - d) None of these
- 5) Devices which monitors and tracks the temperature and gives temperature's measurement as an electrical signal are termed _____ sensors.
 - a) optical
 - b) temperature
 - c) speed
 - d) pressure
- 6) An electric actuator uses electrical energy, is usually actuated by a motor that converts electrical energy into mechanical torque.
 - a) Pneumatic Actuators
 - b) Mechanical Actuators
 - c) Electrical Actuators
 - d) All
- 7) _____ is a standards-based wireless technology developed to enable low-cost, low-power wireless machine-to-machine (M2M) and internet of things (IoT) networks.
 - a) Sensor
 - b) Actuator
 - c) RFID
 - d) Zigbee

- 8) Internet of Things _____ is the special considerations required to protect the information of individuals from exposure in the IoT environment.
- a) privacy
 - b) security
 - c) protection
 - d) none of these
- 9) REST stands for _____.
- a) Representational State Transport
 - b) Representational State Transfer
 - c) Representational Side Transfer
 - d) Reserved State Transfer
- 10) What is IoT?
- a) network of physical objects embedded with sensors
 - b) network of virtual objects
 - c) network of objects in the ring structure
 - d) network of sensors
- 11) _____ IEEE standard is available for ethernet.
- a) 802.11
 - b) 802.3
 - c) 802.16
 - d) 802.15
- 12) Who coined the term "Internet of Things"?
- a) Edward Jameson
 - b) John Wright
 - c) Kevin Aston
 - d) George Garton
- 13) Which of the following is not an IoT device?
- a) Tablet
 - b) Laptop
 - c) Arduino
 - d) Table
- 14) _____ layer is responsible for sending IP datagrams from source to destination network.
- a) Network
 - b) Link
 - c) Transport
 - d) Applications

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (BTN03602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any three of the following. 12

- a) What are the different characteristics of IOT?
- b) Describe layers and design standards used in IOT architecture.
- c) Describe M2M Communication used in IOT.
- d) Elaborate different types of sensors used in IOT.

Q.3 Solve any two 16

- a) Describe Physical Design of IoT and logical design of IOT.
- b) What are the different applications of IOT?
- c) What are different communication technologies used in IOT?

Section – II

Q.4 Solve any three. 12

- a) Describe constrained application protocols used in IOT.
- b) Elaborate bluetooth and its low energy profile used in IOT.
- c) How Security and Vulnerabilities applied to IOT applications
- d) Describe value creation in the IoT.

Q.5 Solve any two 16

- a) Describe representational state transfer architecture used in IOT
- b) Describe Business model and business model innovation for IoT.
- c) Elaborate IoT Privacy in detail.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) A primary goal of software engineering is to improve the _____ and to increase the productivity and job satisfaction of software engineers.

a) Quality of software product	b) Satisfaction of product
c) Flexibility	d) None of these

- 2) The property of software in which software product may be adapted to changes of specifications.

a) Maintainability	b) Flexibility
c) Testability	d) Portability

- 3) Agile Project Management support which of the following?
 - a) Regular adaptation to changing circumstances, including changing requirements
 - b) Constant collaboration in project teams and with clients
 - c) Iterative development processes
 - d) All of the mentioned

- 4) In CMM which level is focusing on documentation of the standard guidelines and procedures, also defects are removed by using a number of review methods?

a) Repeatable level	b) Managed level
c) Defined level	d) Optimizing level

- 5) In system modelling, which model depicts a system's static nature?

a) Data Model	b) Structural Model
c) Context Model	d) Behavioural Model

- 6) What is the major drawback of the Spiral Model?
 - a) Higher amount of risk analysis
 - b) Doesn't work well for smaller projects
 - c) Additional functionalities are added later on
 - d) Strong approval and documentation control

- 7) Which one isn't an approach to estimate the cost of the software?

a) Heuristic	b) Empirical
c) Critical	d) Analytical

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- What do you mean by conceptual design and technical design?
 - How components and connectors of Architectural view are used? Describe with example.
 - Elaborate the coupling with its types.
 - State the Objectives of Software Engineering Model.
- Q.3 Attempt any One. 08**
- Compare and contrast Data Flow Diagram and entity relationship diagram. Draw DFD for railway reservation system.
 - Summarize the needs of SRS. How good SRS reduce development cost explain with example?
- Q.4 Compulsory Question 08**
- Identify the SDLC model for a given scenario and describe it in detail.
 “Aman got a contract to develop a project for ABC-company. He required cross functional teams, which working simultaneously on various areas, Also team should focused on quick responses to change and continuous development.”

Section – II

- Q.5 Answer any three. 12**
- Compare between Agile and Scrum.
 - Explain Black-Box testing.
 - Explain Iterative project management life cycle.
 - Elaborate the terms Inspection and Audit in project planning and management.
- Q.6 Attempt Any One 08**
- Identify the risk management tasks and describe with real-time example.
 - Elaborate Adaptive project management life cycle.
- Q.7 Compulsory Question 08**
- Why there is a need of capability maturity model in software engineering?
 Describe the CMM with neat diagram.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) In what type of coupling, the complete data structure is passed from one module to another?

a) Control Coupling	b) Stamp Coupling
c) External Coupling	d) Content Coupling
- 2) When can black-box testing be started?

a) After Requirement	b) After Design
c) After Installation	d) After Programming
- 3) Engineering design activities consists of which of the following?
 - a) Studying the SRS
 - b) Producing new models of the problem
 - c) Product design models
 - d) All of the mentioned
- 4) Detailed design stage includes which of the following activity?
 - a) Generate candidate architectures
 - b) Evaluate candidate architecture
 - c) Finalize Design
 - d) None of the mentioned
- 5) Which of the following is Risk control activity?

a) Risk analysis	b) Risk prioritization
c) Risk identification	d) Risk resolution
- 6) The "Time Boxing" of a scrum process is called _____.

a) Process	b) Sprint
c) Event	d) Cycle
- 7) Adaptive Software Development has which of the following three framework activities?
 - a) Speculation, collaboration, learning
 - b) Analysis, design, coding
 - c) Requirements gathering, adaptive cycle planning, iterative development
 - d) All of the mentioned

- 8) A primary goal of software engineering is to improve the _____ and to increase the productivity and job satisfaction of software engineers.
- a) Quality of software product
 - b) Satisfaction of product
 - c) Flexibility
 - d) None of these
- 9) The property of software in which software product may be adapted to changes of specifications.
- a) Maintainability
 - b) Flexibility
 - c) Testability
 - d) Portability
- 10) Agile Project Management support which of the following?
- a) Regular adaptation to changing circumstances, including changing requirements
 - b) Constant collaboration in project teams and with clients
 - c) Iterative development processes
 - d) All of the mentioned
- 11) In CMM which level is focusing on documentation of the standard guidelines and procedures, also defects are removed by using a number of review methods?
- a) Repeatable level
 - b) Managed level
 - c) Defined level
 - d) Optimizing level
- 12) In system modelling, which model depicts a system's static nature?
- a) Data Model
 - b) Structural Model
 - c) Context Model
 - d) Behavioural Model
- 13) What is the major drawback of the Spiral Model?
- a) Higher amount of risk analysis
 - b) Doesn't work well for smaller projects
 - c) Additional functionalities are added later on
 - d) Strong approval and documentation control
- 14) Which one isn't an approach to estimate the cost of the software?
- a) Heuristic
 - b) Empirical
 - c) Critical
 - d) Analytical

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three.** **12**
- What do you mean by conceptual design and technical design?
 - How components and connectors of Architectural view are used? Describe with example.
 - Elaborate the coupling with its types.
 - State the Objectives of Software Engineering Model.
- Q.3 Attempt any One.** **08**
- Compare and contrast Data Flow Diagram and entity relationship diagram. Draw DFD for railway reservation system.
 - Summarize the needs of SRS. How good SRS reduce development cost explain with example?
- Q.4 Compulsory Question** **08**
- Identify the SDLC model for a given scenario and describe it in detail.
 “Aman got a contract to develop a project for ABC-company. He required cross functional teams, which working simultaneously on various areas, Also team should focused on quick responses to change and continuous development.”

Section – II

- Q.5 Answer any three.** **12**
- Compare between Agile and Scrum.
 - Explain Black-Box testing.
 - Explain Iterative project management life cycle.
 - Elaborate the terms Inspection and Audit in project planning and management.
- Q.6 Attempt Any One** **08**
- Identify the risk management tasks and describe with real-time example.
 - Elaborate Adaptive project management life cycle.
- Q.7 Compulsory Question** **08**
- Why there is a need of capability maturity model in software engineering?
 Describe the CMM with neat diagram.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Detailed design stage includes which of the following activity?
 - a) Generate candidate architectures
 - b) Evaluate candidate architecture
 - c) Finalize Design
 - d) None of the mentioned
- 2) Which of the following is Risk control activity?
 - a) Risk analysis
 - b) Risk prioritization
 - c) Risk identification
 - d) Risk resolution
- 3) The "Time Boxing" of a scrum process is called _____.
 - a) Process
 - b) Sprint
 - c) Event
 - d) Cycle
- 4) Adaptive Software Development has which of the following three framework activities?
 - a) Speculation, collaboration, learning
 - b) Analysis, design, coding
 - c) Requirements gathering, adaptive cycle planning, iterative development
 - d) All of the mentioned
- 5) A primary goal of software engineering is to improve the _____ and to increase the productivity and job satisfaction of software engineers.
 - a) Quality of software product
 - b) Satisfaction of product
 - c) Flexibility
 - d) None of these
- 6) The property of software in which software product may be adapted to changes of specifications.
 - a) Maintainability
 - b) Flexibility
 - c) Testability
 - d) Portability
- 7) Agile Project Management support which of the following?
 - a) Regular adaptation to changing circumstances, including changing requirements
 - b) Constant collaboration in project teams and with clients
 - c) Iterative development processes
 - d) All of the mentioned

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- What do you mean by conceptual design and technical design?
 - How components and connectors of Architectural view are used? Describe with example.
 - Elaborate the coupling with its types.
 - State the Objectives of Software Engineering Model.
- Q.3 Attempt any One. 08**
- Compare and contrast Data Flow Diagram and entity relationship diagram. Draw DFD for railway reservation system.
 - Summarize the needs of SRS. How good SRS reduce development cost explain with example?
- Q.4 Compulsory Question 08**
- Identify the SDLC model for a given scenario and describe it in detail.
 “Aman got a contract to develop a project for ABC-company. He required cross functional teams, which working simultaneously on various areas, Also team should focused on quick responses to change and continuous development.”

Section – II

- Q.5 Answer any three. 12**
- Compare between Agile and Scrum.
 - Explain Black-Box testing.
 - Explain Iterative project management life cycle.
 - Elaborate the terms Inspection and Audit in project planning and management.
- Q.6 Attempt Any One 08**
- Identify the risk management tasks and describe with real-time example.
 - Elaborate Adaptive project management life cycle.
- Q.7 Compulsory Question 08**
- Why there is a need of capability maturity model in software engineering?
 Describe the CMM with neat diagram.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What is the major drawback of the Spiral Model?
 - a) Higher amount of risk analysis
 - b) Doesn't work well for smaller projects
 - c) Additional functionalities are added later on
 - d) Strong approval and documentation control
- 2) Which one isn't an approach to estimate the cost of the software?
 - a) Heuristic
 - b) Empirical
 - c) Critical
 - d) Analytical
- 3) In what type of coupling, the complete data structure is passed from one module to another?
 - a) Control Coupling
 - b) Stamp Coupling
 - c) External Coupling
 - d) Content Coupling
- 4) When can black-box testing be started?
 - a) After Requirement
 - b) After Design
 - c) After Installation
 - d) After Programming
- 5) Engineering design activities consists of which of the following?
 - a) Studying the SRS
 - b) Producing new models of the problem
 - c) Product design models
 - d) All of the mentioned
- 6) Detailed design stage includes which of the following activity?
 - a) Generate candidate architectures
 - b) Evaluate candidate architecture
 - c) Finalize Design
 - d) None of the mentioned
- 7) Which of the following is Risk control activity?
 - a) Risk analysis
 - b) Risk prioritization
 - c) Risk identification
 - d) Risk resolution

- 8) The “Time Boxing” of a scrum process is called _____.
- | | |
|------------|-----------|
| a) Process | b) Sprint |
| c) Event | d) Cycle |
- 9) Adaptive Software Development has which of the following three framework activities?
- | | |
|---------------------------------------------------------------------------|--|
| a) Speculation, collaboration, learning | |
| b) Analysis, design, coding | |
| c) Requirements gathering, adaptive cycle planning, iterative development | |
| d) All of the mentioned | |
- 10) A primary goal of software engineering is to improve the _____ and to increase the productivity and job satisfaction of software engineers.
- | | |
|--------------------------------|----------------------------|
| a) Quality of software product | b) Satisfaction of product |
| c) Flexibility | d) None of these |
- 11) The property of software in which software product may be adapted to changes of specifications.
- | | |
|--------------------|----------------|
| a) Maintainability | b) Flexibility |
| c) Testability | d) Portability |
- 12) Agile Project Management support which of the following?
- | | |
|----------------------------------------------------------------------------------|--|
| a) Regular adaptation to changing circumstances, including changing requirements | |
| b) Constant collaboration in project teams and with clients | |
| c) Iterative development processes | |
| d) All of the mentioned | |
- 13) In CMM which level is focusing on documentation of the standard guidelines and procedures, also defects are removed by using a number of review methods?
- | | |
|---------------------|---------------------|
| a) Repeatable level | b) Managed level |
| c) Defined level | d) Optimizing level |
- 14) In system modelling, which model depicts a system’s static nature?
- | | |
|------------------|----------------------|
| a) Data Model | b) Structural Model |
| c) Context Model | d) Behavioural Model |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
COMPUTER SCIENCE AND ENGINEERING
Software Engineering (BTN03603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three.** **12**
- What do you mean by conceptual design and technical design?
 - How components and connectors of Architectural view are used? Describe with example.
 - Elaborate the coupling with its types.
 - State the Objectives of Software Engineering Model.
- Q.3 Attempt any One.** **08**
- Compare and contrast Data Flow Diagram and entity relationship diagram. Draw DFD for railway reservation system.
 - Summarize the needs of SRS. How good SRS reduce development cost explain with example?
- Q.4 Compulsory Question** **08**
- Identify the SDLC model for a given scenario and describe it in detail.
 “Aman got a contract to develop a project for ABC-company. He required cross functional teams, which working simultaneously on various areas, Also team should focused on quick responses to change and continuous development.”

Section – II

- Q.5 Answer any three.** **12**
- Compare between Agile and Scrum.
 - Explain Black-Box testing.
 - Explain Iterative project management life cycle.
 - Elaborate the terms Inspection and Audit in project planning and management.
- Q.6 Attempt Any One** **08**
- Identify the risk management tasks and describe with real-time example.
 - Elaborate Adaptive project management life cycle.
- Q.7 Compulsory Question** **08**
- Why there is a need of capability maturity model in software engineering?
 Describe the CMM with neat diagram.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Offering virtualized resources (computation, storage and communication) on demand is known as _____.
 a) Software as a Service (SaaS)
 b) Platform as a Service (PaaS)
 c) Infrastructure as a Service (IaaS)
 d) None of the above
- 2) Which of the following is/are desired feature(s) of a cloud?
 a) per-usage metering and billing b) elasticity
 c) self-service d) all of the mentioned
- 3) _____ is the most complete cloud computing service model in which the computing hardware and software, as well as solution itself, are provided by a vendor as a complete service offering.
 a) Infrastructure-as-a-Service b) Software-as-a-Service
 c) Platform-as-a-Service d) None of these
- 4) The movement of a virtual machine from one physical host to another while being powered on is called _____.
 a) hot migration b) cold migration
 c) live storage migration d) None of these
- 5) Virtual machines (VM) can be provisioned by using which of the following options?
 a) by manually installing an operating system
 b) by using a preconfigured VM template
 c) by cloning an existing VM
 d) All of these
- 6) The fundamental unit of virtualized client in an IaaS deployment is called a _____.
 a) pod b) silos
 c) workload d) None of these

- 7) Which of the following is/are complementary and enabling technologies for open source cloud tools, which play an invaluable role in infrastructure as a service and in building private, public, and hybrid cloud architecture?
- a) Eucalyptus
 - b) Open-Nebula
 - c) Both of these
 - d) None of these
- 8) _____ clouds have the advantage of keeping in-house the core business operations by relying on the existing IT infrastructure and reducing the burden of maintaining it once the cloud has been set up.
- a) Public
 - b) Private
 - c) Both of these
 - d) None of these
- 9) _____ enables on-the-fly integration of local computational environments (data centers, grids) and public cloud services.
- a) Autonomic cloudbursting
 - b) Autonomic cloudbridging
 - c) Autonomic latency
 - d) None of these
- 10) In the CometCloud architecture for autonomic cloudbursts, the _____ layer provides the basic framework for application development and management.
- a) infrastructure
 - b) service
 - c) programming
 - d) None of these
- 11) The model with the least built-in security is the _____ model, where everything that involves software of any kind is the customer's problem.
- a) SaaS
 - b) PaaS
 - c) IaaS
 - d) All of these
- 12) In order to evaluate the risks in any cloud deployment, which of the following analysis need to be performed?
- a) Determine which resources are being planned to be moved to the cloud
 - b) Determine the sensitivity of the resource to risk
 - c) Determine the risk associated with the particular cloud type for a resource
 - d) All of these
- 13) _____ refers to the ability of a cloud provider to deliver software as-a-service solutions to multiple client organizations (or tenants) from a single, shared instance of the software.
- a) Multithreading
 - b) Multiprogramming
 - c) Multi-tenancy
 - d) None of these
- 14) SLA stands for _____.
- a) Server-Level Agreement
 - b) Service-Level Agreement
 - c) Server-Linked Agreement
 - d) Special-Level Agreement

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve Any Three. 12**
- a) Explain the challenges and risks that must be considered to take good advantage of cloud computing.
 - b) Write a short note on Virtual Machine Life Cycle.
 - c) Explain the types of clouds based on deployment models.
 - d) List and explain in short the SaaS characteristics.

- Q.3 Solve Any Two. 16**
- a) Describe in detail the different techniques of Virtual Machine Migration.
 - b) Explain the different cloud computing services in detail.
 - c) Describe pods, aggregation and silos using a suitable example and diagram.

Section – II

- Q.4 Solve Any Three. 12**
- a) Write a short note on Autonomic Cloudbursting using CometCloud.
 - b) Describe in short the data privacy and security issues.
 - c) Write a short note on Brokered cloud storage access.
 - d) Explain in short the Aneka Resource Provisioning Service.

- Q.5 Solve Any Two. 16**
- a) Explain in detail the CometCloud architecture with a neat diagram.
 - b) With the help of a suitable reference model, explain the Security service boundary in cloud computing
 - c) Explain in detail the Jurisdictional Issues raised by Virtualization and Data Location.

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) _____ clouds have the advantage of keeping in-house the core business operations by relying on the existing IT infrastructure and reducing the burden of maintaining it once the cloud has been set up.
 - a) Public
 - b) Private
 - c) Both of these
 - d) None of these
- 2) _____ enables on-the-fly integration of local computational environments (data centers, grids) and public cloud services.
 - a) Autonomic cloudbursting
 - b) Autonomic cloudbridging
 - c) Autonomic latency
 - d) None of these
- 3) In the CometCloud architecture for autonomic cloudbursts, the _____ layer provides the basic framework for application development and management.
 - a) infrastructure
 - b) service
 - c) programming
 - d) None of these
- 4) The model with the least built-in security is the _____ model, where everything that involves software of any kind is the customer's problem.
 - a) SaaS
 - b) PaaS
 - c) IaaS
 - d) All of these
- 5) In order to evaluate the risks in any cloud deployment, which of the following analysis need to be performed?
 - a) Determine which resources are being planned to be moved to the cloud
 - b) Determine the sensitivity of the resource to risk
 - c) Determine the risk associated with the particular cloud type for a resource
 - d) All of these
- 6) _____ refers to the ability of a cloud provider to deliver software as-a-service solutions to multiple client organizations (or tenants) from a single, shared instance of the software.
 - a) Multithreading
 - b) Multiprogramming
 - c) Multi-tenancy
 - d) None of these
- 7) SLA stands for _____.
 - a) Server-Level Agreement
 - b) Service-Level Agreement
 - c) Server-Linked Agreement
 - d) Special-Level Agreement

- 8) Offering virtualized resources (computation, storage and communication) on demand is known as _____.
- a) Software as a Service (SaaS)
 - b) Platform as a Service (PaaS)
 - c) Infrastructure as a Service (IaaS)
 - d) None of the above
- 9) Which of the following is/are desired feature(s) of a cloud?
- a) per-usage metering and billing
 - b) elasticity
 - c) self-service
 - d) all of the mentioned
- 10) _____ is the most complete cloud computing service model in which the computing hardware and software, as well as solution itself, are provided by a vendor as a complete service offering.
- a) Infrastructure-as-a-Service
 - b) Software-as-a-Service
 - c) Platform-as-a-Service
 - d) None of these
- 11) The movement of a virtual machine from one physical host to another while being powered on is called _____.
- a) hot migration
 - b) cold migration
 - c) live storage migration
 - d) None of these
- 12) Virtual machines (VM) can be provisioned by using which of the following options?
- a) by manually installing an operating system
 - b) by using a preconfigured VM template
 - c) by cloning an existing VM
 - d) All of these
- 13) The fundamental unit of virtualized client in an IaaS deployment is called a _____.
- a) pod
 - b) silos
 - c) workload
 - d) None of these
- 14) Which of the following is/are complementary and enabling technologies for open source cloud tools, which play an invaluable role in infrastructure as a service and in building private, public, and hybrid cloud architecture?
- a) Eucalyptus
 - b) Open-Nebula
 - c) Both of these
 - d) None of these

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve Any Three. 12**
- a) Explain the challenges and risks that must be considered to take good advantage of cloud computing.
 - b) Write a short note on Virtual Machine Life Cycle.
 - c) Explain the types of clouds based on deployment models.
 - d) List and explain in short the SaaS characteristics.
- Q.3 Solve Any Two. 16**
- a) Describe in detail the different techniques of Virtual Machine Migration.
 - b) Explain the different cloud computing services in detail.
 - c) Describe pods, aggregation and silos using a suitable example and diagram.

Section – II

- Q.4 Solve Any Three. 12**
- a) Write a short note on Autonomic Cloudbursting using CometCloud.
 - b) Describe in short the data privacy and security issues.
 - c) Write a short note on Brokered cloud storage access.
 - d) Explain in short the Aneka Resource Provisioning Service.
- Q.5 Solve Any Two. 16**
- a) Explain in detail the CometCloud architecture with a neat diagram.
 - b) With the help of a suitable reference model, explain the Security service boundary in cloud computing
 - c) Explain in detail the Jurisdictional Issues raised by Virtualization and Data Location.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer bookpage no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) The model with the least built-in security is the _____ model, where everything that involves software of any kind is the customer's problem.
 - a) SaaS
 - b) PaaS
 - c) IaaS
 - d) All of these
- 2) In order to evaluate the risks in any cloud deployment, which of the following analysis need to be performed?
 - a) Determine which resources are being planned to be moved to the cloud
 - b) Determine the sensitivity of the resource to risk
 - c) Determine the risk associated with the particular cloud type for a resource
 - d) All of these
- 3) _____ refers to the ability of a cloud provider to deliver software as-a-service solutions to multiple client organizations (or tenants) from a single, shared instance of the software.
 - a) Multithreading
 - b) Multiprogramming
 - c) Multi-tenancy
 - d) None of these
- 4) SLA stands for _____.
 - a) Server-Level Agreement
 - b) Service-Level Agreement
 - c) Server-Linked Agreement
 - d) Special-Level Agreement
- 5) Offering virtualized resources (computation, storage and communication) on demand is known as _____.
 - a) Software as a Service (SaaS)
 - b) Platform as a Service (PaaS)
 - c) Infrastructure as a Service (IaaS)
 - d) None of the above
- 6) Which of the following is/are desired feature(s) of a cloud?
 - a) per-usage metering and billing
 - b) elasticity
 - c) self-service
 - d) all of the mentioned

- 7) _____ is the most complete cloud computing service model in which the computing hardware and software, as well as solution itself, are provided by a vendor as a complete service offering.
- a) Infrastructure-as-a-Service b) Software-as-a-Service
c) Platform-as-a-Service d) None of these
- 8) The movement of a virtual machine from one physical host to another while being powered on is called _____.
- a) hot migration b) cold migration
c) live storage migration d) None of these
- 9) Virtual machines (VM) can be provisioned by using which of the following options?
- a) by manually installing an operating system
b) by using a preconfigured VM template
c) by cloning an existing VM
d) All of these
- 10) The fundamental unit of virtualized client in an IaaS deployment is called a _____.
- a) pod b) silos
c) workload d) None of these
- 11) Which of the following is/are complementary and enabling technologies for open source cloud tools, which play an invaluable role in infrastructure as a service and in building private, public, and hybrid cloud architecture?
- a) Eucalyptus b) Open-Nebula
c) Both of these d) None of these
- 12) _____ clouds have the advantage of keeping in-house the core business operations by relying on the existing IT infrastructure and reducing the burden of maintaining it once the cloud has been set up.
- a) Public b) Private
c) Both of these d) None of these
- 13) _____ enables on-the-fly integration of local computational environments (data centers, grids) and public cloud services.
- a) Autonomic cloudbursting b) Autonomic cloudbridging
c) Autonomic latency d) None of these
- 14) In the CometCloud architecture for autonomic cloudbursts, the _____ layer provides the basic framework for application development and management.
- a) infrastructure b) service
c) programming d) None of these

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve Any Three.** **12**
- a) Explain the challenges and risks that must be considered to take good advantage of cloud computing.
 - b) Write a short note on Virtual Machine Life Cycle.
 - c) Explain the types of clouds based on deployment models.
 - d) List and explain in short the SaaS characteristics.

- Q.3 Solve Any Two.** **16**
- a) Describe in detail the different techniques of Virtual Machine Migration.
 - b) Explain the different cloud computing services in detail.
 - c) Describe pods, aggregation and silos using a suitable example and diagram.

Section – II

- Q.4 Solve Any Three.** **12**
- a) Write a short note on Autonomic Cloudbursting using CometCloud.
 - b) Describe in short the data privacy and security issues.
 - c) Write a short note on Brokered cloud storage access.
 - d) Explain in short the Aneka Resource Provisioning Service.

- Q.5 Solve Any Two.** **16**
- a) Explain in detail the CometCloud architecture with a neat diagram.
 - b) With the help of a suitable reference model, explain the Security service boundary in cloud computing
 - c) Explain in detail the Jurisdictional Issues raised by Virtualization and Data Location.

- 7) In order to evaluate the risks in any cloud deployment, which of the following analysis need to be performed?
- a) Determine which resources are being planned to be moved to the cloud
 - b) Determine the sensitivity of the resource to risk
 - c) Determine the risk associated with the particular cloud type for a resource
 - d) All of these
- 8) _____ refers to the ability of a cloud provider to deliver software as-a-service solutions to multiple client organizations (or tenants) from a single, shared instance of the software.
- a) Multithreading
 - b) Multiprogramming
 - c) Multi-tenancy
 - d) None of these
- 9) SLA stands for _____.
- a) Server-Level Agreement
 - b) Service-Level Agreement
 - c) Server-Linked Agreement
 - d) Special-Level Agreement
- 10) Offering virtualized resources (computation, storage and communication) on demand is known as _____.
- a) Software as a Service (SaaS)
 - b) Platform as a Service (PaaS)
 - c) Infrastructure as a Service (IaaS)
 - d) None of the above
- 11) Which of the following is/are desired feature(s) of a cloud?
- a) per-usage metering and billing
 - b) elasticity
 - c) self-service
 - d) all of the mentioned
- 12) _____ is the most complete cloud computing service model in which the computing hardware and software, as well as solution itself, are provided by a vendor as a complete service offering.
- a) Infrastructure-as-a-Service
 - b) Software-as-a-Service
 - c) Platform-as-a-Service
 - d) None of these
- 13) The movement of a virtual machine from one physical host to another while being powered on is called _____.
- a) hot migration
 - b) cold migration
 - c) live storage migration
 - d) None of these
- 14) Virtual machines (VM) can be provisioned by using which of the following options?
- a) by manually installing an operating system
 - b) by using a preconfigured VM template
 - c) by cloning an existing VM
 - d) All of these

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (BTN03606)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve Any Three.** **12**
- a) Explain the challenges and risks that must be considered to take good advantage of cloud computing.
 - b) Write a short note on Virtual Machine Life Cycle.
 - c) Explain the types of clouds based on deployment models.
 - d) List and explain in short the SaaS characteristics.
- Q.3 Solve Any Two.** **16**
- a) Describe in detail the different techniques of Virtual Machine Migration.
 - b) Explain the different cloud computing services in detail.
 - c) Describe pods, aggregation and silos using a suitable example and diagram.

Section – II

- Q.4 Solve Any Three.** **12**
- a) Write a short note on Autonomic Cloudbursting using CometCloud.
 - b) Describe in short the data privacy and security issues.
 - c) Write a short note on Brokered cloud storage access.
 - d) Explain in short the Aneka Resource Provisioning Service.
- Q.5 Solve Any Two.** **16**
- a) Explain in detail the CometCloud architecture with a neat diagram.
 - b) With the help of a suitable reference model, explain the Security service boundary in cloud computing
 - c) Explain in detail the Jurisdictional Issues raised by Virtualization and Data Location.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Network Security (BTN03608)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose correct alternative.

14

- 1) In DES algorithm, if input of an s-box is 110010 then we look for _____ row of s-box to obtain output.

a) 0	b) 1
c) 2	d) 3
- 2) Which of the following(s) is (are) block cipher _____?

a) DES	b) AES
c) RC5	d) All of above
- 3) Use Caesar's Cipher to decipher the text: HQFUBSWHG WHAW.

a) ABANDONED LOCK	b) ENCRYPTED TEXT
c) ABANDONED TEXT	d) ENCRYPTED LOCK
- 4) Which of the following algorithm is not used for asymmetric key cryptography?

a) RSA	b) Diffie- Hellman
c) Electronic code book algorithm	d) None of mentioned
- 5) Matthew and Richard wish to communicate using symmetric cryptography but do not have a prearranged secret key. What algorithm might they use to resolve this situation?

a) DES	b) AES
c) Diffie-Hellman	d) 3-DES
- 6) Hash Function can be used for _____.

a) To create one way password file
b) Intrusion detection
c) Virus detection
d) All of these
- 7) An algorithm that is used to produce an open-ended sequence of bits is referred to as a PRNG _____.

a) SHA	b) PRNG
c) TRNG	d) PRF
- 8) The Digital Signature Standard (DSS) is an NIST standard that uses the _____.

a) Public key	b) Private key
c) SHA	d) None of above

- 9) The Digital Signature Algorithm (DSA) is based on the difficulty of computing _____.
- a) discrete logarithms
 - b) continuous logarithms
 - c) probability
 - d) none of above
- 10) An alternative authentication technique involves the use of secret key to generate a small fixed-size block of data, known as _____ or MAC.
- a) checksum
 - b) cryptographic checksum
 - c) coding
 - d) filtering
- 11) The authentication scheme CMAC indicates _____.
- a) Clock MAC
 - b) Cipher-based MAC
 - c) Caesar MAC
 - d) None of above
- 12) _____ incorporates tools for developing a public-key trust model and public key certificate management.
- a) S/MIME
 - b) PGP
 - c) IPsec
 - d) None of above
- 13) _____ is a specification used by email providers for cryptographically signing email messages on behalf of the source domain.
- a) PGP
 - b) S/MIME
 - c) DKIM
 - d) None of above
- 14) In IPsec the term SPD indicates _____.
- a) Security Policy Database
 - b) Security Private Database
 - c) Service Provider Database
 - d) Service Policy Database

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Network Security (BTN03608)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- Using rail fence transposition technique write encryption message for the plaintext "Solapur university solapur"
- Explain the term randomness and unpredictability with respect to random number generation.
- Explain steps in diffie Hellman Key exchange algorithm with diagram.
- Differentiate between stream cipher vs block cipher.

Q.3 Attempt Any Two. 16

- Describe RSA algorithm with the help of mathematical notations and example.
- Construct the playfair matrix with the key "occurrence" and use it to encrypt the message "The enemy must be stopped at all costs".
- Explain Logic of implementation SHA-512.

Section – II

Q.4 Attempt Any Three. 12

- Describe ESP of IPSec.
- Write a note on: DKIM (Domain Keys Identified Mail).
- Draw and explain DAA (Data Authentication Algorithm).
- Explain Wireless Security.

Q.5 Attempt Any Two. 16

- What is S/MIME? Explain. Describe S/MIME functionality and Messages.
- Describe in detail DSS (Digital Signature Standard).
- Write and explain Extensible Authentication Protocol in detail.

- 9) Which of the following(s) is (are) block cipher _____?
- a) DES
 - b) AES
 - c) RC5
 - d) All of above
- 10) Use Caesar's Cipher to decipher the text: HQFUBSWHG WHAW.
- a) ABANDONED LOCK
 - b) ENCRYPTED TEXT
 - c) ABANDONED TEXT
 - d) ENCRYPTED LOCK
- 11) Which of the following algorithm is not used for asymmetric key cryptography?
- a) RSA
 - b) Diffie- Hellman
 - c) Electronic code book algorithm
 - d) None of mentioned
- 12) Matthew and Richard wish to communicate using symmetric cryptography but do not have a prearranged secret key. What algorithm might they use to resolve this situation?
- a) DES
 - b) AES
 - c) Diffie-Hellman
 - d) 3-DES
- 13) Hash Function can be used for _____.
- a) To create one way password file
 - b) Intrusion detection
 - c) Virus detection
 - d) All of these
- 14) An algorithm that is used to produce an open-ended sequence of bits is referred to as a PRNG _____.
- a) SHA
 - b) PRNG
 - c) TRNG
 - d) PRF

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Network Security (BTN03608)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- Using rail fence transposition technique write encryption message for the plaintext "Solapur university solapur"
- Explain the term randomness and unpredictability with respect to random number generation.
- Explain steps in diffie Hellman Key exchange algorithm with diagram.
- Differentiate between stream cipher vs block cipher.

Q.3 Attempt Any Two. 16

- Describe RSA algorithm with the help of mathematical notations and example.
- Construct the playfair matrix with the key "occurrence" and use it to encrypt the message "The enemy must be stopped at all costs".
- Explain Logic of implementation SHA-512.

Section – II

Q.4 Attempt Any Three. 12

- Describe ESP of IPSec.
- Write a note on: DKIM (Domain Keys Identified Mail).
- Draw and explain DAA (Data Authentication Algorithm).
- Explain Wireless Security.

Q.5 Attempt Any Two. 16

- What is S/MIME? Explain. Describe S/MIME functionality and Messages.
- Describe in detail DSS (Digital Signature Standard).
- Write and explain Extensible Authentication Protocol in detail.

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Network Security (BTN03608)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- Using rail fence transposition technique write encryption message for the plaintext "Solapur university solapur"
- Explain the term randomness and unpredictability with respect to random number generation.
- Explain steps in diffie Hellman Key exchange algorithm with diagram.
- Differentiate between stream cipher vs block cipher.

Q.3 Attempt Any Two. 16

- Describe RSA algorithm with the help of mathematical notations and example.
- Construct the playfair matrix with the key "occurrence" and use it to encrypt the message "The enemy must be stopped at all costs".
- Explain Logic of implementation SHA-512.

Section – II

Q.4 Attempt Any Three. 12

- Describe ESP of IPSec.
- Write a note on: DKIM (Domain Keys Identified Mail).
- Draw and explain DAA (Data Authentication Algorithm).
- Explain Wireless Security.

Q.5 Attempt Any Two. 16

- What is S/MIME? Explain. Describe S/MIME functionality and Messages.
- Describe in detail DSS (Digital Signature Standard).
- Write and explain Extensible Authentication Protocol in detail.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Network Security (BTN03608)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct alternative.**14**

- 1) Hash Function can be used for _____.
 - a) To create one way password file
 - b) Intrusion detection
 - c) Virus detection
 - d) All of these
- 2) An algorithm that is used to produce an open-ended sequence of bits is referred to as a PRNG _____.
 - a) SHA
 - b) PRNG
 - c) TRNG
 - d) PRF
- 3) The Digital Signature Standard (DSS) is an NIST standard that uses the _____.
 - a) Public key
 - b) Private key
 - c) SHA
 - d) None of above
- 4) The Digital Signature Algorithm (DSA) is based on the difficulty of computing _____.
 - a) discrete logarithms
 - b) continuous logarithms
 - c) probability
 - d) none of above
- 5) An alternative authentication technique involves the use of secret key to generate a small fixed-size block of data, known as _____ or MAC.
 - a) checksum
 - b) cryptographic checksum
 - c) coding
 - d) filtering
- 6) The authentication scheme CMAC indicates _____.
 - a) Clock MAC
 - b) Cipher-based MAC
 - c) Caesar MAC
 - d) None of above
- 7) _____ incorporates tools for developing a public-key trust model and public key certificate management.
 - a) S/MIME
 - b) PGP
 - c) IPsec
 - d) None of above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Network Security (BTN03608)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- Using rail fence transposition technique write encryption message for the plaintext "Solapur university solapur"
- Explain the term randomness and unpredictability with respect to random number generation.
- Explain steps in diffie Hellman Key exchange algorithm with diagram.
- Differentiate between stream cipher vs block cipher.

Q.3 Attempt Any Two. 16

- Describe RSA algorithm with the help of mathematical notations and example.
- Construct the playfair matrix with the key "occurrence" and use it to encrypt the message "The enemy must be stopped at all costs".
- Explain Logic of implementation SHA-512.

Section – II

Q.4 Attempt Any Three. 12

- Describe ESP of IPSec.
- Write a note on: DKIM (Domain Keys Identified Mail).
- Draw and explain DAA (Data Authentication Algorithm).
- Explain Wireless Security.

Q.5 Attempt Any Two. 16

- What is S/MIME? Explain. Describe S/MIME functionality and Messages.
- Describe in detail DSS (Digital Signature Standard).
- Write and explain Extensible Authentication Protocol in detail.

- 8) _____ means that information should be provided in easily understandable forms and media; that it should be freely available and directly accessible to those who will be affected by governance policies and practices.
- a) Responsiveness b) Participation
c) Efficiency d) Transparency
- 9) _____ is a field that identifies resource use, measures and communicates costs of a company's or national economic impact on the environment.
- a) Environment b) Sustainability
c) Environmental accounting d) None of the above
- 10) _____ refers to the condition where the doubt lies in whether the action refers to good or bad.
- a) Vagueness b) Conflicting reasons
c) Disagreement d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Management
(BTN03609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

- Q.2 Answer Any Two. 10**
- a) What is engineering ethics?
 - b) What are the different types of Inquiries made in solving ethical problems?
 - c) Explain what are Moral Dilemmas.
- Q.3 Answer Any Two. 10**
- a) Define the terms:
 - i) Profession and main criteria for profession.
 - ii) Professional and Professionalism.
 - b) Explain engineers as experiments.
 - c) Write a note on
 - i) Public Spirited Virtues
 - ii) Proficiency Virtue
- Q.4 Answer Any Two. 10**
- a) Differentiate renewable resources and non-renewable resources.
 - b) Explain the fellowships for higher studies & research in New and Renewable Energy.
 - c) What are the impacts of climate change on water resources based on reliable data and information?
- Q.5 Answer Any Two. 10**
- a) Explain Munasinghe's Approach to Sustainable Development.
 - b) Explain the objective of Good Governance in Sustainable Development.
 - c) What is a Corporate Governance? Explain sustainability framework of corporate governance.

- 8)** What are different types of renewable resources?
- a) Sun
 - b) Wind
 - c) Water
 - d) All of the above
- 9)** _____ refers to the description of the meaning of concepts, principles and issues related to engineering ethics.
- a) Conceptual Inquiry
 - b) Descriptive Inquiry
 - c) Normative Inquiry
 - d) None of the above
- 10)** _____ is a structured system of processes by which companies and corporations are directed and controlled.
- a) Sustainable development
 - b) Corporate governance
 - c) Trustworthiness
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Management
(BTN03609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

- Q.2 Answer Any Two. 10**
- a) What is engineering ethics?
 - b) What are the different types of Inquiries made in solving ethical problems?
 - c) Explain what are Moral Dilemmas.
- Q.3 Answer Any Two. 10**
- a) Define the terms:
 - i) Profession and main criteria for profession.
 - ii) Professional and Professionalism.
 - b) Explain engineers as experiments.
 - c) Write a note on
 - i) Public Spirited Virtues
 - ii) Proficiency Virtue
- Q.4 Answer Any Two. 10**
- a) Differentiate renewable resources and non-renewable resources.
 - b) Explain the fellowships for higher studies & research in New and Renewable Energy.
 - c) What are the impacts of climate change on water resources based on reliable data and information?
- Q.5 Answer Any Two. 10**
- a) Explain Munasinghe's Approach to Sustainable Development.
 - b) Explain the objective of Good Governance in Sustainable Development.
 - c) What is a Corporate Governance? Explain sustainability framework of corporate governance.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Management
(BTN03609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Multiple Choice Questions.

10

- 1) _____ is a field that identifies resource use, measures and communicates costs of a company's or national economic impact on the environment.
 - a) Environment
 - b) Sustainability
 - c) Environmental accounting
 - d) None of the above
- 2) _____ refers to the condition where the doubt lies in whether the action refers to good or bad.
 - a) Vagueness
 - b) Conflicting reasons
 - c) Disagreement
 - d) None of the above
- 3) A person who saves someone or something from any danger is called a _____.
 - a) Savior
 - b) Guardian
 - c) Game Player
 - d) Social Servant
- 4) The virtues which represent the coordination among team members which means working successfully with other professionals _____.
 - a) Proficiency Virtue
 - b) Ethics
 - c) Teamwork Virtue
 - d) Work Ethics
- 5) What are different types of renewable resources?
 - a) Sun
 - b) Wind
 - c) Water
 - d) All of the above
- 6) _____ refers to the description of the meaning of concepts, principles and issues related to engineering ethics.
 - a) Conceptual Inquiry
 - b) Descriptive Inquiry
 - c) Normative Inquiry
 - d) None of the above
- 7) _____ is a structured system of processes by which companies and corporations are directed and controlled.
 - a) Sustainable development
 - b) Corporate governance
 - c) Trustworthiness
 - d) None of the above
- 8) The capacity to understand and act on moral reasons is called as _____.
 - a) Accountability
 - b) Social Responsibility
 - c) Obligation
 - d) All of the above

- 9) _____ which deals with the problems of Individuals, Professionals and companies.
- | | |
|--------------------|------------------|
| a) Macro-ethics | b) Micro-ethics |
| c) Sense of ethics | d) None of these |
- 10) _____ means that information should be provided in easily understandable forms and media; that it should be freely available and directly accessible to those who will be affected by governance policies and practices.
- | | |
|-------------------|------------------|
| a) Responsiveness | b) Participation |
| c) Efficiency | d) Transparency |

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Management
(BTN03609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

- Q.2 Answer Any Two. 10**
- a) What is engineering ethics?
 - b) What are the different types of Inquiries made in solving ethical problems?
 - c) Explain what are Moral Dilemmas.
- Q.3 Answer Any Two. 10**
- a) Define the terms:
 - i) Profession and main criteria for profession.
 - ii) Professional and Professionalism.
 - b) Explain engineers as experiments.
 - c) Write a note on
 - i) Public Spirited Virtues
 - ii) Proficiency Virtue
- Q.4 Answer Any Two. 10**
- a) Differentiate renewable resources and non-renewable resources.
 - b) Explain the fellowships for higher studies & research in New and Renewable Energy.
 - c) What are the impacts of climate change on water resources based on reliable data and information?
- Q.5 Answer Any Two. 10**
- a) Explain Munasinghe's Approach to Sustainable Development.
 - b) Explain the objective of Good Governance in Sustainable Development.
 - c) What is a Corporate Governance? Explain sustainability framework of corporate governance.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Management
(BTN03609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Multiple Choice Questions.

10

- 1) What are different types of renewable resources?
 - a) Sun
 - b) Wind
 - c) Water
 - d) All of the above
- 2) _____ refers to the description of the meaning of concepts, principles and issues related to engineering ethics.
 - a) Conceptual Inquiry
 - b) Descriptive Inquiry
 - c) Normative Inquiry
 - d) None of the above
- 3) _____ is a structured system of processes by which companies and corporations are directed and controlled.
 - a) Sustainable development
 - b) Corporate governance
 - c) Trustworthiness
 - d) None of the above
- 4) The capacity to understand and act on moral reasons is called as _____.
 - a) Accountability
 - b) Social Responsibility
 - c) Obligation
 - d) All of the above
- 5) _____ which deals with the problems of Individuals, Professionals and companies.
 - a) Macro-ethics
 - b) Micro-ethics
 - c) Sense of ethics
 - d) None of these
- 6) _____ means that information should be provided in easily understandable forms and media; that it should be freely available and directly accessible to those who will be affected by governance policies and practices.
 - a) Responsiveness
 - b) Participation
 - c) Efficiency
 - d) Transparency
- 7) _____ is a field that identifies resource use, measures and communicates costs of a company's or national economic impact on the environment.
 - a) Environment
 - b) Sustainability
 - c) Environmental accounting
 - d) None of the above

- 8) _____ refers to the condition where the doubt lies in whether the action refers to good or bad.
- | | |
|-----------------|------------------------|
| a) Vagueness | b) Conflicting reasons |
| c) Disagreement | d) None of the above |
- 9) A person who saves someone or something from any danger is called a _____.
- | | |
|----------------|-------------------|
| a) Savior | b) Guardian |
| c) Game Player | d) Social Servant |
- 10) The virtues which represent the coordination among team members which means working successfully with other professionals _____.
- | | |
|-----------------------|----------------|
| a) Proficiency Virtue | b) Ethics |
| c) Teamwork Virtue | d) Work Ethics |

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Management
(BTN03609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

- Q.2 Answer Any Two. 10**
- a) What is engineering ethics?
 - b) What are the different types of Inquiries made in solving ethical problems?
 - c) Explain what are Moral Dilemmas.
- Q.3 Answer Any Two. 10**
- a) Define the terms:
 - i) Profession and main criteria for profession.
 - ii) Professional and Professionalism.
 - b) Explain engineers as experiments.
 - c) Write a note on
 - i) Public Spirited Virtues
 - ii) Proficiency Virtue
- Q.4 Answer Any Two. 10**
- a) Differentiate renewable resources and non-renewable resources.
 - b) Explain the fellowships for higher studies & research in New and Renewable Energy.
 - c) What are the impacts of climate change on water resources based on reliable data and information?
- Q.5 Answer Any Two. 10**
- a) Explain Munasinghe's Approach to Sustainable Development.
 - b) Explain the objective of Good Governance in Sustainable Development.
 - c) What is a Corporate Governance? Explain sustainability framework of corporate governance.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Which of the following statements about the marginal cost is true?
 - a) When there is an increase in the marginal cost, the production possibility curve is concave to the origin
 - b) When there is an increase in the marginal cost, the production possibility curve is convex to the origin
 - c) When there is an increase in the marginal cost, the production possibility curve is similar the origin
 - d) None of the above
- 2) Resources have _____ uses.

a) Limited	b) Unlimited
c) Alternative	d) Particular
- 3) Who was the Governor of RBI?

a) David Warner	b) Sir Phillip Smith
c) James Watson	d) Shashikanta Das
- 4) Human resource management emphasis _____.

a) Development of people	b) Punishment of people
c) Adoption of people	d) None of these
- 5) The branch of economics that deals with the allocation of resources is _____.

a) Econometrics	b) Macroeconomics
c) Microeconomics	d) None of the above
- 6) Production planning is essential for _____.

a) Inventory management	b) Quality management
c) Supply management	d) All of the above
- 7) _____ is the probability of a product operating efficiently within an estimated time frame.

a) Reliability	b) Durability
c) Serviceability	d) Performance
- 8) Lower order of Maslow Hierarchy of needs theory is _____.

a) Safety needs	b) Esteem needs
c) Self- Actualization needs	d) Physiological needs

- 9) When the size of an organization increases, the functions under production control should _____.
- a) Get more decentralized
 - b) Get more centralized
 - c) Stay the same
 - d) None of the above
- 10) Who is empowered to control the expansion of bank credit?
- a) Finance Minister
 - b) Home Minister
 - c) Reserve Bank of India
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from No. 2. to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes.** **10**
a) Informal Organization
b) Law of Demand and Supply.
- Q.3** Basic economic problems and Fiscal policy in Details. **10**
- Q.4** Explain Types of markets & their characteristics. **10**
- Q.5** Explain marginal cost, opportunity cost. **10**
- Q.6** Explain concepts of marketing, demand forecasting and methods. **10**
- Q.7 Write short notes.** **10**
a) Management & administration
b) Departmentalization

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Production planning is essential for _____.
 a) Inventory management b) Quality management
 c) Supply management d) All of the above
- 2) _____ is the probability of a product operating efficiently within an estimated time frame.
 a) Reliability b) Durability
 c) Serviceability d) Performance
- 3) Lower order of Maslow Hierarchy of needs theory is _____.
 a) Safety needs b) Esteem needs
 c) Self- Actualization needs d) Physiological needs
- 4) When the size of an organization increases, the functions under production control should _____.
 a) Get more decentralized b) Get more centralized
 c) Stay the same d) None of the above
- 5) Who is empowered to control the expansion of bank credit?
 a) Finance Minister b) Home Minister
 c) Reserve Bank of India d) None of the above
- 6) Which of the following statements about the marginal cost is true?
 a) When there is an increase in the marginal cost, the production possibility curve is concave to the origin
 b) When there is an increase in the marginal cost, the production possibility curve is convex to the origin
 c) When there is an increase in the marginal cost, the production possibility curve is similar the origin
 d) None of the above
- 7) Resources have _____ uses.
 a) Limited b) Unlimited
 c) Alternative d) Particular

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from No. 2. to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes.** **10**
a) Informal Organization
b) Law of Demand and Supply.
- Q.3** Basic economic problems and Fiscal policy in Details. **10**
- Q.4** Explain Types of markets & their characteristics. **10**
- Q.5** Explain marginal cost, opportunity cost. **10**
- Q.6** Explain concepts of marketing, demand forecasting and methods. **10**
- Q.7 Write short notes.** **10**
a) Management & administration
b) Departmentalization

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) When the size of an organization increases, the functions under production control should _____.
 - a) Get more decentralized
 - b) Get more centralized
 - c) Stay the same
 - d) None of the above
- 2) Who is empowered to control the expansion of bank credit?
 - a) Finance Minister
 - b) Home Minister
 - c) Reserve Bank of India
 - d) None of the above
- 3) Which of the following statements about the marginal cost is true?
 - a) When there is an increase in the marginal cost, the production possibility curve is concave to the origin
 - b) When there is an increase in the marginal cost, the production possibility curve is convex to the origin
 - c) When there is an increase in the marginal cost, the production possibility curve is similar the origin
 - d) None of the above
- 4) Resources have _____ uses.
 - a) Limited
 - b) Unlimited
 - c) Alternative
 - d) Particular
- 5) Who was the Governor of RBI?
 - a) David Warner
 - b) Sir Phillip Smith
 - c) James Watson
 - d) Shashikanta Das
- 6) Human resource management emphasis _____.
 - a) Development of people
 - b) Punishment of people
 - c) Adoption of people
 - d) None of these
- 7) The branch of economics that deals with the allocation of resources is _____.
 - a) Econometrics
 - b) Macroeconomics
 - c) Microeconomics
 - d) None of the above
- 8) Production planning is essential for _____.
 - a) Inventory management
 - b) Quality management
 - c) Supply management
 - d) All of the above

- 9) _____ is the probability of a product operating efficiently within an estimated time frame.
- | | |
|-------------------|----------------|
| a) Reliability | b) Durability |
| c) Serviceability | d) Performance |
- 10) Lower order of Maslow Hierarchy of needs theory is _____.
- | | |
|------------------------------|------------------------|
| a) Safety needs | b) Esteem needs |
| c) Self- Actualization needs | d) Physiological needs |

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from No. 2. to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes. 10**
a) Informal Organization
b) Law of Demand and Supply.
- Q.3 Basic economic problems and Fiscal policy in Details. 10**
- Q.4 Explain Types of markets & their characteristics. 10**
- Q.5 Explain marginal cost, opportunity cost. 10**
- Q.6 Explain concepts of marketing, demand forecasting and methods. 10**
- Q.7 Write short notes. 10**
a) Management & administration
b) Departmentalization

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Who was the Governor of RBI?
 - a) David Warner
 - b) Sir Phillip Smith
 - c) James Watson
 - d) Shashikanta Das
- 2) Human resource management emphasis _____.
 - a) Development of people
 - b) Punishment of people
 - c) Adoption of people
 - d) None of these
- 3) The branch of economics that deals with the allocation of resources is _____.
 - a) Econometrics
 - b) Macroeconomics
 - c) Microeconomics
 - d) None of the above
- 4) Production planning is essential for _____.
 - a) Inventory management
 - b) Quality management
 - c) Supply management
 - d) All of the above
- 5) _____ is the probability of a product operating efficiently within an estimated time frame.
 - a) Reliability
 - b) Durability
 - c) Serviceability
 - d) Performance
- 6) Lower order of Maslow Hierarchy of needs theory is _____.
 - a) Safety needs
 - b) Esteem needs
 - c) Self- Actualization needs
 - d) Physiological needs
- 7) When the size of an organization increases, the functions under production control should _____.
 - a) Get more decentralized
 - b) Get more centralized
 - c) Stay the same
 - d) None of the above
- 8) Who is empowered to control the expansion of bank credit?
 - a) Finance Minister
 - b) Home Minister
 - c) Reserve Bank of India
 - d) None of the above

- 9) Which of the following statements about the marginal cost is true?
- a) When there is an increase in the marginal cost, the production possibility curve is concave to the origin
 - b) When there is an increase in the marginal cost, the production possibility curve is convex to the origin
 - c) When there is an increase in the marginal cost, the production possibility curve is similar the origin
 - d) None of the above
- 10) Resources have _____ uses.
- a) Limited
 - b) Unlimited
 - c) Alternative
 - d) Particular

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Engineering Economics and Management (BTN03610)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from No. 2. to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes. 10**
a) Informal Organization
b) Law of Demand and Supply.
- Q.3 Basic economic problems and Fiscal policy in Details. 10**
- Q.4 Explain Types of markets & their characteristics. 10**
- Q.5 Explain marginal cost, opportunity cost. 10**
- Q.6 Explain concepts of marketing, demand forecasting and methods. 10**
- Q.7 Write short notes. 10**
a) Management & administration
b) Departmentalization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Arson is _____ type disaster.

a) Technological	b) Chemical
c) Geological	d) Social
- 2) A _____ is a situation having the potential to cause damage or harm.

a) Risk	b) Vulnerability
c) Hazard	d) Disaster
- 3) _____ Hazards cause harm to the humans as also the environment and property.

a) Social	b) Chemical
c) Biological	d) Physical
- 4) _____ happens when groups of people panic and run to save their lives from real or assumed danger.

a) Blasts	b) Stampedes
c) Arson	d) Power outages
- 5) Providing food, water and medical help activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 6) Establishments and rehabilitation activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 7) Early warning systems, evacuation strategies belong to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation

- 8) An example of an anthropogenic disaster is _____.
- | | |
|--------------------|------------------------|
| a) a road accident | b) an earth tremor |
| c) a landslide | d) a volcanic eruption |
- 9) _____ Phase starts after the immediate threat to human life has subsided.
- | | |
|-------------|-----------------|
| a) Recovery | b) Preparedness |
| c) Response | d) Mitigation |
- 10) Which of the following is not a biological disaster?
- | | |
|-----------------|-------------------|
| a) Epidemics | b) Food poisoning |
| c) Pest attacks | d) Mine fire |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two. 10

- Write an account on geomorphic (geological) hazards.
- How can SWOT analysis help in effective management of disasters?
- What do you mean by hazard zoning? Explain.

Q.3 Solve Any One. 10

- Discuss the types of disaster, giving suitable example.
- Which things we need to consider for the selection of sites for industries and residential buildings? Explain.

Section – II

Q.4 Solve Any Two. 10

- List the principles of disaster preparedness. Explain any one in detail.
- After disaster, which are the essential services should be made functional on a priority basis according to you?
- Define all the objectives of disaster recovery.

Q.5 Solve Any One. 10

- List and explain steps of disaster preparedness.
- Discuss major medium and long term recovery aspects with example.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Establishments and rehabilitation activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 2) Early warning systems, evacuation strategies belong to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 3) An example of an anthropogenic disaster is _____.

a) a road accident	b) an earth tremor
c) a landslide	d) a volcanic eruption
- 4) _____ Phase starts after the immediate threat to human life has subsided.

a) Recovery	b) Preparedness
c) Response	d) Mitigation
- 5) Which of the following is not a biological disaster?

a) Epidemics	b) Food poisoning
c) Pest attacks	d) Mine fire
- 6) Arson is _____ type disaster.

a) Technological	b) Chemical
c) Geological	d) Social
- 7) A _____ is a situation having the potential to cause damage or harm.

a) Risk	b) Vulnerability
c) Hazard	d) Disaster
- 8) _____ Hazards cause harm to the humans as also the environment and property.

a) Social	b) Chemical
c) Biological	d) Physical

- 9) _____ happens when groups of people panic and run to save their lives from real or assumed danger.
- a) Blasts
 - b) Stampedes
 - c) Arson
 - d) Power outages
- 10) Providing food, water and medical help activity belongs to _____ phase of disaster management.
- a) Response
 - b) Preparedness
 - c) Recovery
 - d) Mitigation

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve Any Two. 10**
- a) Write an account on geomorphic (geological) hazards.
 - b) How can SWOT analysis help in effective management of disasters?
 - c) What do you mean by hazard zoning? Explain.
- Q.3 Solve Any One. 10**
- a) Discuss the types of disaster, giving suitable example.
 - b) Which things we need to consider for the selection of sites for industries and residential buildings? Explain.

Section – II

- Q.4 Solve Any Two. 10**
- a) List the principles of disaster preparedness. Explain any one in detail.
 - b) After disaster, which are the essential services should be made functional on a priority basis according to you?
 - c) Define all the objectives of disaster recovery.
- Q.5 Solve Any One. 10**
- a) List and explain steps of disaster preparedness.
 - b) Discuss major medium and long term recovery aspects with example.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) _____ Phase starts after the immediate threat to human life has subsided.

a) Recovery	b) Preparedness
c) Response	d) Mitigation
- 2) Which of the following is not a biological disaster?

a) Epidemics	b) Food poisoning
c) Pest attacks	d) Mine fire
- 3) Arson is _____ type disaster.

a) Technological	b) Chemical
c) Geological	d) Social
- 4) A _____ is a situation having the potential to cause damage or harm.

a) Risk	b) Vulnerability
c) Hazard	d) Disaster
- 5) _____ Hazards cause harm to the humans as also the environment and property.

a) Social	b) Chemical
c) Biological	d) Physical
- 6) _____ happens when groups of people panic and run to save their lives from real or assumed danger.

a) Blasts	b) Stampedes
c) Arson	d) Power outages
- 7) Providing food, water and medical help activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 8) Establishments and rehabilitation activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation

- 9)** Early warning systems, evacuation strategies belong to _____ phase of disaster management.
- | | |
|-------------|-----------------|
| a) Response | b) Preparedness |
| c) Recovery | d) Mitigation |
- 10)** An example of an anthropogenic disaster is _____.
- | | |
|--------------------|------------------------|
| a) a road accident | b) an earth tremor |
| c) a landslide | d) a volcanic eruption |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two. 10

- Write an account on geomorphic (geological) hazards.
- How can SWOT analysis help in effective management of disasters?
- What do you mean by hazard zoning? Explain.

Q.3 Solve Any One. 10

- Discuss the types of disaster, giving suitable example.
- Which things we need to consider for the selection of sites for industries and residential buildings? Explain.

Section – II

Q.4 Solve Any Two. 10

- List the principles of disaster preparedness. Explain any one in detail.
- After disaster, which are the essential services should be made functional on a priority basis according to you?
- Define all the objectives of disaster recovery.

Q.5 Solve Any One. 10

- List and explain steps of disaster preparedness.
- Discuss major medium and long term recovery aspects with example.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) _____ Hazards cause harm to the humans as also the environment and property.

a) Social	b) Chemical
c) Biological	d) Physical
- 2) _____ happens when groups of people panic and run to save their lives from real or assumed danger.

a) Blasts	b) Stampedes
c) Arson	d) Power outages
- 3) Providing food, water and medical help activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 4) Establishments and rehabilitation activity belongs to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 5) Early warning systems, evacuation strategies belong to _____ phase of disaster management.

a) Response	b) Preparedness
c) Recovery	d) Mitigation
- 6) An example of an anthropogenic disaster is _____.

a) a road accident	b) an earth tremor
c) a landslide	d) a volcanic eruption
- 7) _____ Phase starts after the immediate threat to human life has subsided.

a) Recovery	b) Preparedness
c) Response	d) Mitigation
- 8) Which of the following is not a biological disaster?

a) Epidemics	b) Food poisoning
c) Pest attacks	d) Mine fire

- 9)** Arson is _____ type disaster.
- | | |
|------------------|-------------|
| a) Technological | b) Chemical |
| c) Geological | d) Social |
- 10)** A _____ is a situation having the potential to cause damage or harm.
- | | |
|-----------|------------------|
| a) Risk | b) Vulnerability |
| c) Hazard | d) Disaster |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Disaster Management (BTN03611)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two. 10

- a) Write an account on geomorphic (geological) hazards.
- b) How can SWOT analysis help in effective management of disasters?
- c) What do you mean by hazard zoning? Explain.

Q.3 Solve Any One. 10

- a) Discuss the types of disaster, giving suitable example.
- b) Which things we need to consider for the selection of sites for industries and residential buildings? Explain.

Section – II

Q.4 Solve Any Two. 10

- a) List the principles of disaster preparedness. Explain any one in detail.
- b) After disaster, which are the essential services should be made functional on a priority basis according to you?
- c) Define all the objectives of disaster recovery.

Q.5 Solve Any One. 10

- a) List and explain steps of disaster preparedness.
- b) Discuss major medium and long term recovery aspects with example.

Seat No.	
----------	--

Set **P**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the field of Natural Language Processing (NLP)?
 - a) Computer Science
 - b) Artificial Intelligence
 - c) Linguistics
 - d) All of the mentioned
- 2) NLP is concerned with the interactions between computers and human (natural) languages.
 - a) True
 - b) False
 - c) Can't say
 - d) None of these
- 3) What is the main challenge/s of NLP?
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 4) Modern NLP algorithms are based on machine learning, especially statistical machine learning.
 - a) True
 - b) False
 - c) Can't say
 - d) None of these
- 5) Choose from the following areas where NLP can be useful.
 - a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 6) Which of the following includes major tasks of NLP?
 - a) Automatic Summarization
 - b) Discourse Analysis
 - c) Machine Translation
 - d) All of the mentioned
- 7) What is Coreference Resolution?
 - a) Anaphora Resolution
 - b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
 - c) All of the mentioned
 - d) None of the mentioned

- 8) What is Machine Translation?
- a) Converts one human language to another
 - b) Converts human language to machine language
 - c) Converts any human language to English
 - d) Converts Machine language to human language
- 9) What is Morphological Segmentation?
- a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned
- 10) Given a stream of text, Named Entity Recognition determines which pronoun maps to which noun?
- a) False
 - b) True
 - c) Can't say
 - d) None of the mentioned
- 11) Parts-of-Speech tagging determines _____.
- a) part-of-speech for each word dynamically as per meaning of the sentence
 - b) part-of-speech for each word dynamically as per sentence structure
 - c) all part-of-speech for a specific word given as input
 - d) all of the mentioned
- 12) IR (information Retrieval) and IE (Information Extraction) are the two same thing.
- a) True
 - b) False
 - c) Can't say
 - d) None of these
- 13) In linguistic morphology _____ is the process for reducing inflected words to their root form.
- a) Rooting
 - b) Stemming
 - c) Text-Proofing
 - d) Both Rooting & Stemming
- 14) What is full form of NLP?
- a) Natural Language Processing
 - b) Nature Language Processing
 - c) Natural Language Process
 - d) Natural Language pages

Seat No.	
-----------------	--

Set P

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- a) Explain Biology of speech processing in detail.
- b) Explain Word-Net application in Query Expansion.
- c) Write a short note on Wiktionary.
- d) Explain Hybrid of Rule based and Probabilistic parsing.
- e) Explain the concept of Arguments and Adjuncts.

Q.3 Attempt any Two. 16

- a) Explain the steps of NLP with example.
- b) What is Semantic Role? Explain different Semantic Roles with example.
- c) Explain Parsing Algorithms in detail.

Section – II

Q.4 Attempt any Three. 12

- a) Explain Phonetics in detail.
- b) What is morphology? Explain Morphology Fundamentals in detail.
- c) Explain Dependency Parsing in detail.
- d) Describe HMM and Speech Recognition.
- e) Describe Robust and Scalable Machine Translation.

Q.5 Attempt any Two. 16

- a) Explain Morphological diversity of Indian Languages.
- b) Explain Semantic Role Extraction in detail.
- c) Explain Sentiment Analysis in detail.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is Machine Translation?
 - a) Converts one human language to another
 - b) Converts human language to machine language
 - c) Converts any human language to English
 - d) Converts Machine language to human language
- 2) What is Morphological Segmentation?
 - a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned
- 3) Given a stream of text, Named Entity Recognition determines which pronoun maps to which noun?

a) False	b) True
c) Can't say	d) None of the mentioned
- 4) Parts-of-Speech tagging determines _____.
 - a) part-of-speech for each word dynamically as per meaning of the sentence
 - b) part-of-speech for each word dynamically as per sentence structure
 - c) all part-of-speech for a specific word given as input
 - d) all of the mentioned
- 5) IR (information Retrieval) and IE (Information Extraction) are the two same thing.

a) True	b) False
c) Can't say	d) None of these
- 6) In linguistic morphology _____ is the process for reducing inflected words to their root form.

a) Rooting	b) Stemming
c) Text-Proofing	d) Both Rooting & Stemming
- 7) What is full form of NLP?

a) Natural Language Processing	b) Nature Language Processing
c) Natural Language Process	d) Natural Language pages

- 8) What is the field of Natural Language Processing (NLP)?
a) Computer Science b) Artificial Intelligence
c) Linguistics d) All of the mentioned
- 9) NLP is concerned with the interactions between computers and human (natural) languages.
a) True b) False
c) Can't say d) None of these
- 10) What is the main challenge/s of NLP?
a) Handling Ambiguity of Sentences
b) Handling Tokenization
c) Handling POS-Tagging
d) All of the mentioned
- 11) Modern NLP algorithms are based on machine learning, especially statistical machine learning.
a) True b) False
c) Can't say d) None of these
- 12) Choose from the following areas where NLP can be useful.
a) Automatic Text Summarization
b) Automatic Question-Answering Systems
c) Information Retrieval
d) All of the mentioned
- 13) Which of the following includes major tasks of NLP?
a) Automatic Summarization b) Discourse Analysis
c) Machine Translation d) All of the mentioned
- 14) What is Coreference Resolution?
a) Anaphora Resolution
b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
c) All of the mentioned
d) None of the mentioned

Seat No.	
-----------------	--

Set Q

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- Explain Biology of speech processing in detail.
- Explain Word-Net application in Query Expansion.
- Write a short note on Wiktionary.
- Explain Hybrid of Rule based and Probabilistic parsing.
- Explain the concept of Arguments and Adjuncts.

Q.3 Attempt any Two. 16

- Explain the steps of NLP with example.
- What is Semantic Role? Explain different Semantic Roles with example.
- Explain Parsing Algorithms in detail.

Section – II

Q.4 Attempt any Three. 12

- Explain Phonetics in detail.
- What is morphology? Explain Morphology Fundamentals in detail.
- Explain Dependency Parsing in detail.
- Describe HMM and Speech Recognition.
- Describe Robust and Scalable Machine Translation.

Q.5 Attempt any Two. 16

- Explain Morphological diversity of Indian Languages.
- Explain Semantic Role Extraction in detail.
- Explain Sentiment Analysis in detail.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Parts-of-Speech tagging determines _____.
 - a) part-of-speech for each word dynamically as per meaning of the sentence
 - b) part-of-speech for each word dynamically as per sentence structure
 - c) all part-of-speech for a specific word given as input
 - d) all of the mentioned
- 2) IR (information Retrieval) and IE (Information Extraction) are the two same thing.
 - a) True
 - b) False
 - c) Can't say
 - d) None of these
- 3) In linguistic morphology _____ is the process for reducing inflected words to their root form.
 - a) Rooting
 - b) Stemming
 - c) Text-Proofing
 - d) Both Rooting & Stemming
- 4) What is full form of NLP?
 - a) Natural Language Processing
 - b) Nature Language Processing
 - c) Natural Language Process
 - d) Natural Language pages
- 5) What is the field of Natural Language Processing (NLP)?
 - a) Computer Science
 - b) Artificial Intelligence
 - c) Linguistics
 - d) All of the mentioned
- 6) NLP is concerned with the interactions between computers and human (natural) languages.
 - a) True
 - b) False
 - c) Can't say
 - d) None of these
- 7) What is the main challenge/s of NLP?
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned

- 8) Modern NLP algorithms are based on machine learning, especially statistical machine learning.
- a) True
 - b) False
 - c) Can't say
 - d) None of these
- 9) Choose from the following areas where NLP can be useful.
- a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 10) Which of the following includes major tasks of NLP?
- a) Automatic Summarization
 - b) Discourse Analysis
 - c) Machine Translation
 - d) All of the mentioned
- 11) What is Coreference Resolution?
- a) Anaphora Resolution
 - b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
 - c) All of the mentioned
 - d) None of the mentioned
- 12) What is Machine Translation?
- a) Converts one human language to another
 - b) Converts human language to machine language
 - c) Converts any human language to English
 - d) Converts Machine language to human language
- 13) What is Morphological Segmentation?
- a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned
- 14) Given a stream of text, Named Entity Recognition determines which pronoun maps to which noun?
- a) False
 - b) True
 - c) Can't say
 - d) None of the mentioned

Seat No.	
-----------------	--

Set R

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- a) Explain Biology of speech processing in detail.
- b) Explain Word-Net application in Query Expansion.
- c) Write a short note on Wiktionary.
- d) Explain Hybrid of Rule based and Probabilistic parsing.
- e) Explain the concept of Arguments and Adjuncts.

Q.3 Attempt any Two. 16

- a) Explain the steps of NLP with example.
- b) What is Semantic Role? Explain different Semantic Roles with example.
- c) Explain Parsing Algorithms in detail.

Section – II

Q.4 Attempt any Three. 12

- a) Explain Phonetics in detail.
- b) What is morphology? Explain Morphology Fundamentals in detail.
- c) Explain Dependency Parsing in detail.
- d) Describe HMM and Speech Recognition.
- e) Describe Robust and Scalable Machine Translation.

Q.5 Attempt any Two. 16

- a) Explain Morphological diversity of Indian Languages.
- b) Explain Semantic Role Extraction in detail.
- c) Explain Sentiment Analysis in detail.

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following includes major tasks of NLP?
 - a) Automatic Summarization
 - b) Discourse Analysis
 - c) Machine Translation
 - d) All of the mentioned
- 2) What is Coreference Resolution?
 - a) Anaphora Resolution
 - b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
 - c) All of the mentioned
 - d) None of the mentioned
- 3) What is Machine Translation?
 - a) Converts one human language to another
 - b) Converts human language to machine language
 - c) Converts any human language to English
 - d) Converts Machine language to human language
- 4) What is Morphological Segmentation?
 - a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned
- 5) Given a stream of text, Named Entity Recognition determines which pronoun maps to which noun?
 - a) False
 - b) True
 - c) Can't say
 - d) None of the mentioned
- 6) Parts-of-Speech tagging determines _____.
 - a) part-of-speech for each word dynamically as per meaning of the sentence
 - b) part-of-speech for each word dynamically as per sentence structure
 - c) all part-of-speech for a specific word given as input
 - d) all of the mentioned

- 7) IR (information Retrieval) and IE (Information Extraction) are the two same thing.
- a) True
 - b) False
 - c) Can't say
 - d) None of these
- 8) In linguistic morphology _____ is the process for reducing inflected words to their root form.
- a) Rooting
 - b) Stemming
 - c) Text-Proofing
 - d) Both Rooting & Stemming
- 9) What is full form of NLP?
- a) Natural Language Processing
 - b) Nature Language Processing
 - c) Natural Language Process
 - d) Natural Language pages
- 10) What is the field of Natural Language Processing (NLP)?
- a) Computer Science
 - b) Artificial Intelligence
 - c) Linguistics
 - d) All of the mentioned
- 11) NLP is concerned with the interactions between computers and human (natural) languages.
- a) True
 - b) False
 - c) Can't say
 - d) None of these
- 12) What is the main challenge/s of NLP?
- a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 13) Modern NLP algorithms are based on machine learning, especially statistical machine learning.
- a) True
 - b) False
 - c) Can't say
 - d) None of these
- 14) Choose from the following areas where NLP can be useful.
- a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned

Seat No.	
-----------------	--

Set S

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Natural Language Processing (BTN03612)

Day & Date: Monday 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- a) Explain Biology of speech processing in detail.
- b) Explain Word-Net application in Query Expansion.
- c) Write a short note on Wiktionary.
- d) Explain Hybrid of Rule based and Probabilistic parsing.
- e) Explain the concept of Arguments and Adjuncts.

Q.3 Attempt any Two. 16

- a) Explain the steps of NLP with example.
- b) What is Semantic Role? Explain different Semantic Roles with example.
- c) Explain Parsing Algorithms in detail.

Section – II

Q.4 Attempt any Three. 12

- a) Explain Phonetics in detail.
- b) What is morphology? Explain Morphology Fundamentals in detail.
- c) Explain Dependency Parsing in detail.
- d) Describe HMM and Speech Recognition.
- e) Describe Robust and Scalable Machine Translation.

Q.5 Attempt any Two. 16

- a) Explain Morphological diversity of Indian Languages.
- b) Explain Semantic Role Extraction in detail.
- c) Explain Sentiment Analysis in detail.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Machine Learning enables models to train on data sets once deployed do not change is called as _____.
 - a) Offline machine learning model
 - b) Deep Learning model
 - c) Online machine Learning model
 - d) None of these
- 2) _____ is a form of AI that enables a system to learn from data rather than through explicit programming.

a) Deep Learning	b) Collective intelligence
c) Machine Learning	d) None of this
- 3) Supervised learning and unsupervised clustering both require at least one.

a) Output attribute	b) Input attribute
c) Hidden attribute	d) none
- 4) Relational database is an example of _____.

a) Semi-structured data	b) Structured data
c) Unstructured data	d) none
- 5) _____ function performs the rendering and uses a grayscale color map.

a) plt.show()	b) show()
c) imshow()	d) imread()
- 6) Which of following steps are required to apply machine learning technique to support business strategy?
 - a) What is the business problem you are trying to solve
 - b) When are the hidden data resources that you can take advantage
 - c) How can you prepare to get your data
 - d) all
- 7) _____ determines how well a machine learning algorithm performs in a supervised prediction or an unsupervised optimization problem.

a) cost function	b) evaluation function
c) both	d) none

Seat No.	
----------	--

Set **P**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) Define Machine Learning Explain Lear verging the power of machine learning.
 - b) Write at least four differences between Supervised learning and unsupervised learning.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Write differences between data mining and machine learning.
- Q.3 Attempt any One.** **06**
- a) Exploring the world of Probabilities
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following** **06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any Four** **16**
- a) Explain the term avoiding sample bias and Leakage Trap.
 - b) Explain the term underfitting and overfitting.
 - c) Explain Learning curves using cross validation.
 - d) Explain the future of machine learning as case study.
 - e) Explain Averaging model.
- Q.6 Attempt any One** **06**
- a) Explain Learning as Optimization.
 - b) Explain the use of machine learning in Recommending Products and Movies.
- Q.7 Attempt the following.** **06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In Python _____ package offers all the functionality needed to create and manipulate matrices.

a) scipy	b) numpy
c) none	d) sklearn
- 2) It may surprise you to know that you can get even better results by _____ models together.

a) hypothesis space	b) averaging
c) stacking	d) none
- 3) The process goes on repetitively until there are no more chunks. Chunks can be small (depending on core memory), and the process is called _____.

a) mini-batch learning	b) learning model
c) linear regression	d) none
- 4) _____ are display in which you plot the performance of one or more machine learning algorithms with respect to the quantity of data they use for training.

a) Learning curves	b) Under fitting
c) Overfitting	d) None
- 5) _____ Algorithm is used to remove redundant data, outliers and other no useful data.

a) Bayesian	b) Dimensionality reduction
c) Association	d) Clustering
- 6) _____ ways improves machine learning model.

a) error curve method	b) Testing multiple model
c) SDLC Model	d) None
- 7) _____ is a phenomena of observing results that are systematically prejudiced due to faulty assumptions.

a) Bais	b) Variance
c) Mode	d) None

- 8) Machine Learning enables models to train on data sets once deployed do not change is called as _____.
a) Offline machine learning model
b) Deep Learning model
c) Online machine Learning model
d) None of these
- 9) _____ is a form of AI that enables a system to learn from data rather than through explicit programming.
a) Deep Learning
b) Collective intelligence
c) Machine Learning
d) None of this
- 10) Supervised learning and unsupervised clustering both require at least one.
a) Output attribute
b) Input attribute
c) Hidden attribute
d) none
- 11) Relational database is an example of _____.
a) Semi-structured data
b) Structured data
c) Unstructured data
d) none
- 12) _____ function performs the rendering and uses a grayscale color map.
a) plt.show()
b) show()
c) imshow()
d) imread()
- 13) Which of following steps are required to apply machine learning technique to support business strategy?
a) What is the business problem you are trying to solve
b) When are the hidden data resources that you can take advantage
c) How can you prepare to get your data
d) all
- 14) _____ determines how well a machine learning algorithm performs in a supervised prediction or an unsupervised optimization problem.
a) cost function
b) evaluation function
c) both
d) none

Seat No.	
----------	--

Set **Q**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) Define Machine Learning Explain Lear verging the power of machine learning.
 - b) Write at least four differences between Supervised learning and unsupervised learning.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Write differences between data mining and machine learning.
- Q.3 Attempt any One.** **06**
- a) Exploring the world of Probabilities
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following** **06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any Four** **16**
- a) Explain the term avoiding sample bias and Leakage Trap.
 - b) Explain the term underfitting and overfitting.
 - c) Explain Learning curves using cross validation.
 - d) Explain the future of machine learning as case study.
 - e) Explain Averaging model.
- Q.6 Attempt any One** **06**
- a) Explain Learning as Optimization.
 - b) Explain the use of machine learning in Recommending Products and Movies.
- Q.7 Attempt the following.** **06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ are display in which you plot the performance of one or more machine learning algorithms with respect to the quantity of data they use for training.

a) Learning curves	b) Under fitting
c) Overfitting	d) None
- 2) _____ Algorithm is used to remove redundant data, outliers and other no useful data.

a) Bayesian	b) Dimensionality reduction
c) Association	d) Clustering
- 3) _____ ways improves machine learning model.

a) error curve method	b) Testing multiple model
c) SDLC Model	d) None
- 4) _____ is a phenomena of observing results that are systematically prejudiced due to faulty assumptions.

a) Bais	b) Variance
c) Mode	d) None
- 5) Machine Learning enables models to train on data sets once deployed do not change is called as _____.

a) Offline machine learning model
b) Deep Learning model
c) Online machine Learning model
d) None of these
- 6) _____ is a form of AI that enables a system to learn from data rather than through explicit programming.

a) Deep Learning	b) Collective intelligence
c) Machine Learning	d) None of this
- 7) Supervised learning and unsupervised clustering both require at least one.

a) Output attribute	b) Input attribute
c) Hidden attribute	d) none

- 8) Relational database is an example of _____.
a) Semi-structured data b) Structured data
c) Unstructured data d) none
- 9) _____ function performs the rendering and uses a grayscale color map.
a) plt.show() b) show()
c) imshow() d) imread()
- 10) Which of following steps are required to apply machine learning technique to support business strategy?
a) What is the business problem you are trying to solve
b) When are the hidden data resources that you can take advantage
c) How can you prepare to get your data
d) all
- 11) _____ determines how well a machine learning algorithm performs in a supervised prediction or an unsupervised optimization problem.
a) cost function b) evaluation function
c) both d) none
- 12) In Python _____ package offers all the functionality needed to create and manipulate matrices.
a) scipy b) numpy
c) none d) sklearn
- 13) It may surprise you to know that you can get even better results by _____ models together.
a) hypothesis space b) averaging
c) stacking d) none
- 14) The process goes on repetitively until there are no more chunks. Chunks can be small (depending on core memory), and the process is called _____.
a) mini-batch learning b) learning model
c) linear regression d) none

Seat No.	
----------	--

Set

R

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) Define Machine Learning Explain Lear verging the power of machine learning.
 - b) Write at least four differences between Supervised learning and unsupervised learning.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Write differences between data mining and machine learning.
- Q.3 Attempt any One.** **06**
- a) Exploring the world of Probabilities
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following** **06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any Four** **16**
- a) Explain the term avoiding sample bias and Leakage Trap.
 - b) Explain the term underfitting and overfitting.
 - c) Explain Learning curves using cross validation.
 - d) Explain the future of machine learning as case study.
 - e) Explain Averaging model.
- Q.6 Attempt any One** **06**
- a) Explain Learning as Optimization.
 - b) Explain the use of machine learning in Recommending Products and Movies.
- Q.7 Attempt the following.** **06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of following steps are required to apply machine learning technique to support business strategy?
 - a) What is the business problem you are trying to solve
 - b) When are the hidden data resources that you can take advantage
 - c) How can you prepare to get your data
 - d) all
- 2) _____ determines how well a machine learning algorithm performs in a supervised prediction or an unsupervised optimization problem.
 - a) cost function
 - b) evaluation function
 - c) both
 - d) none
- 3) In Python _____ package offers all the functionality needed to create and manipulate matrices.
 - a) scipy
 - b) numpy
 - c) none
 - d) sklearn
- 4) It may surprise you to know that you can get even better results by _____ models together.
 - a) hypothesis space
 - b) averaging
 - c) stacking
 - d) none
- 5) The process goes on repetitively until there are no more chunks. Chunks can be small (depending on core memory), and the process is called _____.
 - a) mini-batch learning
 - b) learning model
 - c) linear regression
 - d) none
- 6) _____ are display in which you plot the performance of one or more machine learning algorithms with respect to the quantity of data they use for training.
 - a) Learning curves
 - b) Under fitting
 - c) Overfitting
 - d) None

- 7) _____ Algorithm is used to remove redundant data, outliers and other no useful data.
- a) Bayesian
 - b) Dimensionality reduction
 - c) Association
 - d) Clustering
- 8) _____ ways improves machine learning model.
- a) error curve method
 - b) Testing multiple model
 - c) SDLC Model
 - d) None
- 9) _____ is a phenomena of observing results that are systematically prejudiced due to faulty assumptions.
- a) Bais
 - b) Variance
 - c) Mode
 - d) None
- 10) Machine Learning enables models to train on data sets once deployed do not change is called as _____.
- a) Offline machine learning model
 - b) Deep Learning model
 - c) Online machine Learning model
 - d) None of these
- 11) _____ is a form of AI that enables a system to learn from data rather than through explicit programming.
- a) Deep Learning
 - b) Collective intelligence
 - c) Machine Learning
 - d) None of this
- 12) Supervised learning and unsupervised clustering both require at least one.
- a) Output attribute
 - b) Input attribute
 - c) Hidden attribute
 - d) none
- 13) Relational database is an example of _____.
- a) Semi-structured data
 - b) Structured data
 - c) Unstructured data
 - d) none
- 14) _____ function performs the rendering and uses a grayscale color map.
- a) plt.show()
 - b) show()
 - c) imshow()
 - d) imread()

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (BTN03613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) Define Machine Learning Explain Lear verging the power of machine learning.
 - b) Write at least four differences between Supervised learning and unsupervised learning.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Write differences between data mining and machine learning.
- Q.3 Attempt any One.** **06**
- a) Exploring the world of Probabilities
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following** **06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any Four** **16**
- a) Explain the term avoiding sample bias and Leakage Trap.
 - b) Explain the term underfitting and overfitting.
 - c) Explain Learning curves using cross validation.
 - d) Explain the future of machine learning as case study.
 - e) Explain Averaging model.
- Q.6 Attempt any One** **06**
- a) Explain Learning as Optimization.
 - b) Explain the use of machine learning in Recommending Products and Movies.
- Q.7 Attempt the following.** **06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is a class of computer threat?

a) DoS attack	b) Phishing
c) Stalking	d) Soliciting
- 2) Many Cyber Crimes comes under Indian Penal Code Which one of the following is an example?
 - a) Sending Threatening message by Email
 - b) Forgery of Electronic Record
 - c) Bogus Website
 - d) All of above
- 3) Which word best fits with this definition - officials set up a perimeter around a crime scene?

a) Civilian	b) Math
c) Law enforcement	d) Police officer
- 4) "When an attacker is able to eavesdrop on network traffic and identify the MAC address of a computer with network privileges." Which type of Wireless network threat would you classify this under?

a) Identity Theft	b) Man in the middle attack
c) Network Injection	d) Accidental Association
- 5) Digital Signature Certificate is _____ requirement under various applications.

a) Statutory	b) Legislative
c) Governmental	d) Voluntary
- 6) A _____ is a means of access to a program that bypasses security mechanism.

a) Proxy	b) Backdoor
c) Virus	d) Trojan
- 7) Assessing Computer without prior authorization is a cyber crime that comes under _____.

a) Section 65	b) Section 66
c) Section 68	d) Section 70

- 8) Which of the following is the hacking approach where cyber-criminals design fake websites or pages for tricking or gaining additional traffic?
- a) Website-Duplication
 - b) Mimicking
 - c) Spamming
 - d) Pharming
- 9) DoS is abbreviated as ____.
- a) Denial of Service
 - b) Distribution of Server
 - c) Distribution of Service
 - d) Denial of Server
- 10) Identify among the following which is used to avoid browser-based hacking ____.
- a) Adware remover in browser
 - b) Incognito mode in the browser
 - c) Anti-malware in browser
 - d) Remote browser access
- 11) Which of the below malware types permits the hackers to access administrative controls and do nearly everything he wants with the infected systems?
- a) RATs
 - b) Worms
 - c) Rootkits
 - d) Botnets
- 12) Which of the following method is recommended to develop latent fingerprints on human skin?
- a) Ninhydrin Method
 - b) Amido Black Method
 - c) Silver-Iodine Plate Transfer Method
 - d) DFO Method
- 13) CCFP stands for?
- a) Cyber Certified Forensics Professional
 - b) Certified Cyber Forensics Professional
 - c) Certified Cyber Forensics Program
 - d) Certified Cyber Forensics Product
- 14) What is the Primary Objective of Digital Forensic for Business and Industry?
- a) Availability of service
 - b) Continuity of operation
 - c) Prosecution
 - d) Security

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Write a note on Cyber Defamation
 - b) Write a note on Cyber stalking.
 - c) What is proxy server? What are the purpose of proxy server?
 - d) What are the functions of backdoors?
 - e) Write a note on Digital Signature.

- Q.3 Solve any two. 12**
- a) Explain in details Password Cracking.
 - b) What are the Key Amendments to IT Rules, 2021?
 - c) Explain the term.
 - i) Worms
 - ii) Software Keyloggers
 - iii) Trojan Horses
 - iv) Backdoors

Section – II

- Q.4 Solve any four. 16**
- a) Write scenario of Digital Forensic.
 - b) Explain Cyber forensics and Digital Evidence.
 - c) Explain different toolkits for hand held device forensic.
 - d) What are the security issues associated with social networking sites?
 - e) List the well-known tools with “counter forensic features”.

- Q.5 Solve any two. 12**
- a) Explain relevance of OSI 7 layer model to computer forensic.
 - b) Explain in detail data mining in cyber forensic.
 - c) Write a short note on:
 - i) Hand held device
 - ii) Network technologies

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is the hacking approach where cyber-criminals design fake websites or pages for tricking or gaining additional traffic?
 - a) Website-Duplication
 - b) Mimicking
 - c) Spamming
 - d) Pharming
- 2) DoS is abbreviated as _____.
 - a) Denial of Service
 - b) Distribution of Server
 - c) Distribution of Service
 - d) Denial of Server
- 3) Identify among the following which is used to avoid browser-based hacking _____.
 - a) Adware remover in browser
 - b) Incognito mode in the browser
 - c) Anti-malware in browser
 - d) Remote browser access
- 4) Which of the below malware types permits the hackers to access administrative controls and do nearly everything he wants with the infected systems?
 - a) RATs
 - b) Worms
 - c) Rootkits
 - d) Botnets
- 5) Which of the following method is recommended to develop latent fingerprints on human skin?
 - a) Ninhydrin Method
 - b) Amido Black Method
 - c) Silver-Iodine Plate Transfer Method
 - d) DFO Method
- 6) CCFP stands for?
 - a) Cyber Certified Forensics Professional
 - b) Certified Cyber Forensics Professional
 - c) Certified Cyber Forensics Program
 - d) Certified Cyber Forensics Product
- 7) What is the Primary Objective of Digital Forensic for Business and Industry?
 - a) Availability of service
 - b) Continuity of operation
 - c) Prosecution
 - d) Security

Seat No.	
-----------------	--

Set Q

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Write a note on Cyber Defamation
 - b) Write a note on Cyber stalking.
 - c) What is proxy server? What are the purpose of proxy server?
 - d) What are the functions of backdoors?
 - e) Write a note on Digital Signature.

- Q.3 Solve any two. 12**
- a) Explain in details Password Cracking.
 - b) What are the Key Amendments to IT Rules, 2021?
 - c) Explain the term.
 - i) Worms
 - ii) Software Keyloggers
 - iii) Trojan Horses
 - iv) Backdoors

Section – II

- Q.4 Solve any four. 16**
- a) Write scenario of Digital Forensic.
 - b) Explain Cyber forensics and Digital Evidence.
 - c) Explain different toolkits for hand held device forensic.
 - d) What are the security issues associated with social networking sites?
 - e) List the well-known tools with “counter forensic features”.

- Q.5 Solve any two. 12**
- a) Explain relevance of OSI 7 layer model to computer forensic.
 - b) Explain in detail data mining in cyber forensic.
 - c) Write a short note on:
 - i) Hand held device
 - ii) Network technologies

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the below malware types permits the hackers to access administrative controls and do nearly everything he wants with the infected systems?
 - a) RATs
 - b) Worms
 - c) Rootkits
 - d) Botnets

- 2) Which of the following method is recommended to develop latent fingerprints on human skin?
 - a) Ninhydrin Method
 - b) Amido Black Method
 - c) Silver-Iodine Plate Transfer Method
 - d) DFO Method

- 3) CCFP stands for?
 - a) Cyber Certified Forensics Professional
 - b) Certified Cyber Forensics Professional
 - c) Certified Cyber Forensics Program
 - d) Certified Cyber Forensics Product

- 4) What is the Primary Objective of Digital Forensic for Business and Industry?
 - a) Availability of service
 - b) Continuity of operation
 - c) Prosecution
 - d) Security

- 5) Which of the following is a class of computer threat?
 - a) DoS attack
 - b) Phishing
 - c) Stalking
 - d) Soliciting

- 6) Many Cyber Crimes comes under Indian Penal Code Which one of the following is an example?
 - a) Sending Threatening message by Email
 - b) Forgery of Electronic Record
 - c) Bogus Website
 - d) All of above

Seat No.	
-----------------	--

Set R

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Write a note on Cyber Defamation
 - b) Write a note on Cyber stalking.
 - c) What is proxy server? What are the purpose of proxy server?
 - d) What are the functions of backdoors?
 - e) Write a note on Digital Signature.

- Q.3 Solve any two. 12**
- a) Explain in details Password Cracking.
 - b) What are the Key Amendments to IT Rules, 2021?
 - c) Explain the term.
 - i) Worms
 - ii) Software Keyloggers
 - iii) Trojan Horses
 - iv) Backdoors

Section – II

- Q.4 Solve any four. 16**
- a) Write scenario of Digital Forensic.
 - b) Explain Cyber forensics and Digital Evidence.
 - c) Explain different toolkits for hand held device forensic.
 - d) What are the security issues associated with social networking sites?
 - e) List the well-known tools with “counter forensic features”.

- Q.5 Solve any two. 12**
- a) Explain relevance of OSI 7 layer model to computer forensic.
 - b) Explain in detail data mining in cyber forensic.
 - c) Write a short note on:
 - i) Hand held device
 - ii) Network technologies

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A _____ is a means of access to a program that bypasses security mechanism.

a) Proxy	b) Backdoor
c) Virus	d) Trojan
- 2) Assessing Computer without prior authorization is a cyber crime that comes under _____.

a) Section 65	b) Section 66
c) Section 68	d) Section 70
- 3) Which of the following is the hacking approach where cyber-criminals design fake websites or pages for tricking or gaining additional traffic?

a) Website-Duplication	b) Mimicking
c) Spamming	d) Pharming
- 4) DoS is abbreviated as _____.

a) Denial of Service	b) Distribution of Server
c) Distribution of Service	d) Denial of Server
- 5) Identify among the following which is used to avoid browser-based hacking _____.

a) Adware remover in browser	b) Incognito mode in the browser
c) Anti-malware in browser	d) Remote browser access
- 6) Which of the below malware types permits the hackers to access administrative controls and do nearly everything he wants with the infected systems?

a) RATs	b) Worms
c) Rootkits	d) Botnets
- 7) Which of the following method is recommended to develop latent fingerprints on human skin?

a) Ninhydrin Method	b) Amido Black Method
c) Silver-Iodine Plate Transfer Method	d) DFO Method

- 8) CCFP stands for?
a) Cyber Certified Forensics Professional
b) Certified Cyber Forensics Professional
c) Certified Cyber Forensics Program
d) Certified Cyber Forensics Product
- 9) What is the Primary Objective of Digital Forensic for Business and Industry?
a) Availability of service
b) Continuity of operation
c) Prosecution
d) Security
- 10) Which of the following is a class of computer threat?
a) DoS attack
b) Phishing
c) Stalking
d) Soliciting
- 11) Many Cyber Crimes comes under Indian Penal Code Which one of the following is an example?
a) Sending Threatening message by Email
b) Forgery of Electronic Record
c) Bogus Website
d) All of above
- 12) Which word best fits with this definition - officials set up a perimeter around a crime scene?
a) Civilian
b) Math
c) Law enforcement
d) Police officer
- 13) "When an attacker is able to eavesdrop on network traffic and identify the MAC address of a computer with network privileges." Which type of Wireless network threat would you classify this under?
a) Identity Theft
b) Man in the middle attack
c) Network Injection
d) Accidental Association
- 14) Digital Signature Certificate is _____ requirement under various applications.
a) Statutory
b) Legislative
c) Governmental
d) Voluntary

Seat No.	
-----------------	--

Set S

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
COMPUTER SCIENCE AND ENGINEERING
Cyber Forensic (BTN03614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Solve any four. 16**
- a) Write a note on Cyber Defamation
 - b) Write a note on Cyber stalking.
 - c) What is proxy server? What are the purpose of proxy server?
 - d) What are the functions of backdoors?
 - e) Write a note on Digital Signature.

- Q.3 Solve any two. 12**
- a) Explain in details Password Cracking.
 - b) What are the Key Amendments to IT Rules, 2021?
 - c) Explain the term.
 - i) Worms
 - ii) Software Keyloggers
 - iii) Trojan Horses
 - iv) Backdoors

Section – II

- Q.4 Solve any four. 16**
- a) Write scenario of Digital Forensic.
 - b) Explain Cyber forensics and Digital Evidence.
 - c) Explain different toolkits for hand held device forensic.
 - d) What are the security issues associated with social networking sites?
 - e) List the well-known tools with “counter forensic features”.

- Q.5 Solve any two. 12**
- a) Explain relevance of OSI 7 layer model to computer forensic.
 - b) Explain in detail data mining in cyber forensic.
 - c) Write a short note on:
 - i) Hand held device
 - ii) Network technologies

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What allows different projects to use the same source files at the same time?
 - a) Version Control
 - b) Access control
 - c) CM Process
 - d) Version Control and Access control
- 2) Identify among the following which is not a type of incremental testing approach?

a) Big Bang	b) Top-down
c) Bottom-up	d) Functional incrimination
- 3) Boundary value analysis belongs to?

a) White Box Testing	b) Black Box Testing
c) White Box & Black Box Testing	d) None of the mentioned
- 4) Which of the following are types of code review?
 - a) Code walkthrough
 - b) Code inspection
 - c) Code walkthrough & Code inspection
 - d) None
- 5) Which requirements are the foundation from which quality is measured?

a) Hardware	b) Software
c) Programmers	d) None of the mentioned
- 6) Which, in general, is the least required skill of a good tester?
 - a) Being diplomatic
 - b) Able to write software
 - c) Having good attention to detail
 - d) Able to be relied on

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Answer any four questions. 16**
- a) What is the defect life cycle in STLC?
 - b) Explain the benefits of Beta and Gamma testing.
 - c) What are the criteria used for requirement testing?
 - d) What is Defect management Process?
 - e) What is Sandwich testing and explain the advantages and disadvantages of Sandwich testing?

- Q.3 Answer any two questions. 12**
- a) Elaborate top-down approach for integration testing.
 - b) Summarize the software development life cycle during testing.
 - c) What is regression testing and stress testing with example?

Section – II

- Q.4 Answer any four questions. 16**
- a) Explain CMM quality standards.
 - b) Explain Software Quality Dilemma.
 - c) What is automation test? Explain benefits of automation testing.
 - d) What is difference between QA, QC and Software Testing?
 - e) Short Note on: Test Case Organization and Tracking.

- Q.5 Answer any two questions. 12**
- a) Briefly explain Selenium tool and its usage in functional testing of web applications.
 - b) Describe SQA Processes and Product characteristics in SQA.
 - c) Explain Random testing in automation.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Acceptance testing is also known as _____.
 - a) Grey box testing
 - b) White box testing
 - c) Alpha Testing
 - d) Beta Testing
- 2) Testing done without planning and Documentation is called _____.
 - a) Unit testing
 - b) Regression testing
 - c) Ad-hoc testing
 - d) None of the mentioned
- 3) Which of the following is not a SQA plan for a project?
 - a) Evaluations to be performed
 - b) Amount of technical work
 - c) Audits and reviews to be performed
 - d) Documents to be produced by the SQA group
- 4) What is the first step of QA?
 - a) Development of standards
 - b) Identification of customer need
 - c) Servicing
 - d) Material control
- 5) Selenium tests _____.
 - a) DOS applications
 - b) Browser-based applications
 - c) GUI applications
 - d) None of the above
- 6) Select the component which is NOT part of Selenium suite.
 - a) Selenium IDE
 - b) Selenium RC
 - c) Selenium Grid
 - d) Selenium Web
- 7) Which of the following is not a maturity level in CMM?
 - a) Design
 - b) Repeatable
 - c) Managed
 - d) Optimizing

- 8) What allows different projects to use the same source files at the same time?
- a) Version Control
 - b) Access control
 - c) CM Process
 - d) Version Control and Access control
- 9) Identify among the following which is not a type of incremental testing approach?
- a) Big Bang
 - b) Top-down
 - c) Bottom-up
 - d) Functional incrimination
- 10) Boundary value analysis belongs to?
- a) White Box Testing
 - b) Black Box Testing
 - c) White Box & Black Box Testing
 - d) None of the mentioned
- 11) Which of the following are types of code review?
- a) Code walkthrough
 - b) Code inspection
 - c) Code walkthrough & Code inspection
 - d) None
- 12) Which requirements are the foundation from which quality is measured?
- a) Hardware
 - b) Software
 - c) Programmers
 - d) None of the mentioned
- 13) Which, in general, is the least required skill of a good tester?
- a) Being diplomatic
 - b) Able to write software
 - c) Having good attention to detail
 - d) Able to be relied on
- 14) The inputs for developing a test plan are taken from_____.
- a) Project plan
 - b) Business plan
 - c) Support plan
 - d) None of the above

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Answer any four questions. 16**
- a) What is the defect life cycle in STLC?
 - b) Explain the benefits of Beta and Gamma testing.
 - c) What are the criteria used for requirement testing?
 - d) What is Defect management Process?
 - e) What is Sandwich testing and explain the advantages and disadvantages of Sandwich testing?

- Q.3 Answer any two questions. 12**
- a) Elaborate top-down approach for integration testing.
 - b) Summarize the software development life cycle during testing.
 - c) What is regression testing and stress testing with example?

Section – II

- Q.4 Answer any four questions. 16**
- a) Explain CMM quality standards.
 - b) Explain Software Quality Dilemma.
 - c) What is automation test? Explain benefits of automation testing.
 - d) What is difference between QA, QC and Software Testing?
 - e) Short Note on: Test Case Organization and Tracking.

- Q.5 Answer any two questions. 12**
- a) Briefly explain Selenium tool and its usage in functional testing of web applications.
 - b) Describe SQA Processes and Product characteristics in SQA.
 - c) Explain Random testing in automation.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the first step of QA?
 - a) Development of standards
 - b) Identification of customer need
 - c) Servicing
 - d) Material control
- 2) Selenium tests _____.
 - a) DOS applications
 - b) Browser-based applications
 - c) GUI applications
 - d) None of the above
- 3) Select the component which is NOT part of Selenium suite.
 - a) Selenium IDE
 - b) Selenium RC
 - c) Selenium Grid
 - d) Selenium Web
- 4) Which of the following is not a maturity level in CMM?
 - a) Design
 - b) Repeatable
 - c) Managed
 - d) Optimizing
- 5) What allows different projects to use the same source files at the same time?
 - a) Version Control
 - b) Access control
 - c) CM Process
 - d) Version Control and Access control
- 6) Identify among the following which is not a type of incremental testing approach?
 - a) Big Bang
 - b) Top-down
 - c) Bottom-up
 - d) Functional incrimination
- 7) Boundary value analysis belongs to?
 - a) White Box Testing
 - b) Black Box Testing
 - c) White Box & Black Box Testing
 - d) None of the mentioned

- 8) Which of the following are types of code review?
- a) Code walkthrough
 - b) Code inspection
 - c) Code walkthrough & Code inspection
 - d) None
- 9) Which requirements are the foundation from which quality is measured?
- a) Hardware
 - b) Software
 - c) Programmers
 - d) None of the mentioned
- 10) Which, in general, is the least required skill of a good tester?
- a) Being diplomatic
 - b) Able to write software
 - c) Having good attention to detail
 - d) Able to be relied on
- 11) The inputs for developing a test plan are taken from_____.
- a) Project plan
 - b) Business plan
 - c) Support plan
 - d) None of the above
- 12) Acceptance testing is also known as _____.
- a) Grey box testing
 - b) White box testing
 - c) Alpha Testing
 - d) Beta Testing
- 13) Testing done without planning and Documentation is called _____.
- a) Unit testing
 - b) Regression testing
 - c) Ad-hoc testing
 - d) None of the mentioned
- 14) Which of the following is not a SQA plan for a project?
- a) Evaluations to be performed
 - b) Amount of technical work
 - c) Audits and reviews to be performed
 - d) Documents to be produced by the SQA group

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Answer any four questions. 16**
- a) What is the defect life cycle in STLC?
 - b) Explain the benefits of Beta and Gamma testing.
 - c) What are the criteria used for requirement testing?
 - d) What is Defect management Process?
 - e) What is Sandwich testing and explain the advantages and disadvantages of Sandwich testing?

- Q.3 Answer any two questions. 12**
- a) Elaborate top-down approach for integration testing.
 - b) Summarize the software development life cycle during testing.
 - c) What is regression testing and stress testing with example?

Section – II

- Q.4 Answer any four questions. 16**
- a) Explain CMM quality standards.
 - b) Explain Software Quality Dilemma.
 - c) What is automation test? Explain benefits of automation testing.
 - d) What is difference between QA, QC and Software Testing?
 - e) Short Note on: Test Case Organization and Tracking.

- Q.5 Answer any two questions. 12**
- a) Briefly explain Selenium tool and its usage in functional testing of web applications.
 - b) Describe SQA Processes and Product characteristics in SQA.
 - c) Explain Random testing in automation.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which, in general, is the least required skill of a good tester?
 - a) Being diplomatic
 - b) Able to write software
 - c) Having good attention to detail
 - d) Able to be relied on
- 2) The inputs for developing a test plan are taken from _____.
 - a) Project plan
 - b) Business plan
 - c) Support plan
 - d) None of the above
- 3) Acceptance testing is also known as _____.
 - a) Grey box testing
 - b) White box testing
 - c) Alpha Testing
 - d) Beta Testing
- 4) Testing done without planning and Documentation is called _____.
 - a) Unit testing
 - b) Regression testing
 - c) Ad-hoc testing
 - d) None of the mentioned
- 5) Which of the following is not a SQA plan for a project?
 - a) Evaluations to be performed
 - b) Amount of technical work
 - c) Audits and reviews to be performed
 - d) Documents to be produced by the SQA group
- 6) What is the first step of QA?
 - a) Development of standards
 - b) Identification of customer need
 - c) Servicing
 - d) Material control
- 7) Selenium tests _____.
 - a) DOS applications
 - b) Browser-based applications
 - c) GUI applications
 - d) None of the above

- 8) Select the component which is NOT part of Selenium suite.
- a) Selenium IDE
 - b) Selenium RC
 - c) Selenium Grid
 - d) Selenium Web
- 9) Which of the following is not a maturity level in CMM?
- a) Design
 - b) Repeatable
 - c) Managed
 - d) Optimizing
- 10) What allows different projects to use the same source files at the same time?
- a) Version Control
 - b) Access control
 - c) CM Process
 - d) Version Control and Access control
- 11) Identify among the following which is not a type of incremental testing approach?
- a) Big Bang
 - b) Top-down
 - c) Bottom-up
 - d) Functional incrimination
- 12) Boundary value analysis belongs to?
- a) White Box Testing
 - b) Black Box Testing
 - c) White Box & Black Box Testing
 - d) None of the mentioned
- 13) Which of the following are types of code review?
- a) Code walkthrough
 - b) Code inspection
 - c) Code walkthrough & Code inspection
 - d) None
- 14) Which requirements are the foundation from which quality is measured?
- a) Hardware
 - b) Software
 - c) Programmers
 - d) None of the mentioned

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (BTN03701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Answer any four questions. 16**
- a) What is the defect life cycle in STLC?
 - b) Explain the benefits of Beta and Gamma testing.
 - c) What are the criteria used for requirement testing?
 - d) What is Defect management Process?
 - e) What is Sandwich testing and explain the advantages and disadvantages of Sandwich testing?

- Q.3 Answer any two questions. 12**
- a) Elaborate top-down approach for integration testing.
 - b) Summarize the software development life cycle during testing.
 - c) What is regression testing and stress testing with example?

Section – II

- Q.4 Answer any four questions. 16**
- a) Explain CMM quality standards.
 - b) Explain Software Quality Dilemma.
 - c) What is automation test? Explain benefits of automation testing.
 - d) What is difference between QA, QC and Software Testing?
 - e) Short Note on: Test Case Organization and Tracking.

- Q.5 Answer any two questions. 12**
- a) Briefly explain Selenium tool and its usage in functional testing of web applications.
 - b) Describe SQA Processes and Product characteristics in SQA.
 - c) Explain Random testing in automation.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) In the expression, position = initial + rate * 60, how many operator tokens will get generated?

a) 4	b) 3
c) 6	d) 7
- 2) For specification of tokens _____ can be used.

a) Stack	b) regular expression
c) finite automata	d) queue
- 3) The role of lexical analyzer can be stated as _____.

a) Generate tokens	b) generate parse tree
c) Separate out blacks	d) both a and c
- 4) _____ is the least powerful bottom up parser.

a) SLR	b) LALR
c) Canonical LR	d) All of these
- 5) Consider the Given grammar:
G: S → aBCd, B → b, C → c Then FOLLOW (C) will contain _____.

a) a	b) b
c) c	d) d
- 6) In S attributed definition, the node can get the attributes from its _____.

a) Parent node	b) left sibling
c) right sibling	d) both a and b
e) all of these	
- 7) The bottom up evaluation of expression is done using _____.

a) array	b) linked list
c) Stack	d) queue

- 8) In the activation record, the details of callee procedure are stored in _____ field.
- a) temporaries
 - b) control link
 - c) access link
 - d) machine status
- 9) Collecting all free memory towards one end of memory block is called _____.
- a) Allocation
 - b) De allocation
 - c) Compaction
 - d) Conservation
- 10) The 3-address code has _____ addresses in one instruction.
- a) Exactly 3
 - b) At least 3
 - c) At most 3
 - d) all of these
- 11) Filling up the blank spaces after 3 address code generation in conditional statements is called _____.
- a) Forwarding
 - b) Back patching
 - c) Loop unrolling
 - d) none of these
- 12) The target code generation is based on various issues like _____.
- a) Register allocation
 - b) Instruction cost
 - c) Code generation from DAGs
 - d) both a and b
- 13) _____ is the only optional phase in compilation process.
- a) Lexical analysis
 - b) Semantic analysis
 - c) Code generation
 - d) Code optimization
- 14) Loop optimization can be done in which of the following ways?
- a) Code motion
 - b) Induction variable elimination
 - c) Loop unrolling
 - d) all of these

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) Write a short note on compiler construction tools.
 - b) Explain roles of a lexical analyzer.
 - c) Explain Left factoring with example.
 - d) Explain bottom up evaluation of synthesized attributes.
 - e) Explain Operator precedence parser with example.
- Q.3 Attempt the following questions. 12**
- a) Explain recognition of tokens with example.
 - b) Explain SLR parser with example.

Section – II

- Q.4 Attempt any Four. 16**
- a) Explain symbol table management in detail.
 - b) Explain issues in design of code generator in detail.
 - c) Differentiate between static and stack allocation in detail.
 - d) Explain 3 address code generation for case statement.
 - e) Explain data flow equations with example.
- Q.5 Attempt the following questions. 12**
- a) Explain partitioning of basic blocks with example.
 - b) Explain various optimization techniques in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) In the activation record, the details of callee procedure are stored in _____ field.

a) temporaries	b) control link
c) access link	d) machine status
- 2) Collecting all free memory towards one end of memory block is called _____.

a) Allocation	b) De allocation
c) Compaction	d) Conservation
- 3) The 3-address code has _____ addresses in one instruction.

a) Exactly 3	b) At least 3
c) At most 3	d) all of these
- 4) Filling up the blank spaces after 3 address code generation in conditional statements is called _____.

a) Forwarding	b) Back patching
c) Loop unrolling	d) none of these
- 5) The target code generation is based on various issues like _____.

a) Register allocation	
b) Instruction cost	
c) Code generation from DAGs	
d) both a and b	
- 6) _____ is the only optional phase in compilation process.

a) Lexical analysis	b) Semantic analysis
c) Code generation	d) Code optimization
- 7) Loop optimization can be done in which of the following ways?

a) Code motion
b) Induction variable elimination
c) Loop unrolling
d) all of these

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) Write a short note on compiler construction tools.
 - b) Explain roles of a lexical analyzer.
 - c) Explain Left factoring with example.
 - d) Explain bottom up evaluation of synthesized attributes.
 - e) Explain Operator precedence parser with example.
- Q.3 Attempt the following questions. 12**
- a) Explain recognition of tokens with example.
 - b) Explain SLR parser with example.

Section – II

- Q.4 Attempt any Four. 16**
- a) Explain symbol table management in detail.
 - b) Explain issues in design of code generator in detail.
 - c) Differentiate between static and stack allocation in detail.
 - d) Explain 3 address code generation for case statement.
 - e) Explain data flow equations with example.
- Q.5 Attempt the following questions. 12**
- a) Explain partitioning of basic blocks with example.
 - b) Explain various optimization techniques in detail.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) Filling up the blank spaces after 3 address code generation in conditional statements is called _____.
 - a) Forwarding
 - b) Back patching
 - c) Loop unrolling
 - d) none of these
- 2) The target code generation is based on various issues like _____.
 - a) Register allocation
 - b) Instruction cost
 - c) Code generation from DAGs
 - d) both a and b
- 3) _____ is the only optional phase in compilation process.
 - a) Lexical analysis
 - b) Semantic analysis
 - c) Code generation
 - d) Code optimization
- 4) Loop optimization can be done in which of the following ways?
 - a) Code motion
 - b) Induction variable elimination
 - c) Loop unrolling
 - d) all of these
- 5) In the expression, position = initial + rate * 60, how many operator tokens will get generated?
 - a) 4
 - b) 3
 - c) 6
 - d) 7
- 6) For specification of tokens _____ can be used.
 - a) Stack
 - b) regular expression
 - c) finite automata
 - d) queue
- 7) The role of lexical analyzer can be stated as _____.
 - a) Generate tokens
 - b) generate parse tree
 - c) Separate out blacks
 - d) both a and c

- 8) _____ is the least powerful bottom up parser.
- a) SLR
 - b) LALR
 - c) Canonical LR
 - d) All of these
- 9) Consider the Given grammar:
G: $S \rightarrow aBCd$, $B \rightarrow b$, $C \rightarrow c$ Then FOLLOW (C) will contain _____
- a) a
 - b) b
 - c) c
 - d) d
- 10) In S attributed definition, the node can get the attributes from its _____.
- a) Parent node
 - b) left sibling
 - c) right sibling
 - d) both a and b
 - e) all of these
- 11) The bottom up evaluation of expression is done using _____
- a) array
 - b) linked list
 - c) Stack
 - d) queue
- 12) In the activation record, the details of callee procedure are stored in _____ field.
- a) temporaries
 - b) control link
 - c) access link
 - d) machine status
- 13) Collecting all free memory towards one end of memory block is called _____.
- a) Allocation
 - b) De allocation
 - c) Compaction
 - d) Conservation
- 14) The 3-address code has _____ addresses in one instruction.
- a) Exactly 3
 - b) At least 3
 - c) At most 3
 - d) all of these

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) Write a short note on compiler construction tools.
 - b) Explain roles of a lexical analyzer.
 - c) Explain Left factoring with example.
 - d) Explain bottom up evaluation of synthesized attributes.
 - e) Explain Operator precedence parser with example.
- Q.3 Attempt the following questions. 12**
- a) Explain recognition of tokens with example.
 - b) Explain SLR parser with example.

Section – II

- Q.4 Attempt any Four. 16**
- a) Explain symbol table management in detail.
 - b) Explain issues in design of code generator in detail.
 - c) Differentiate between static and stack allocation in detail.
 - d) Explain 3 address code generation for case statement.
 - e) Explain data flow equations with example.
- Q.5 Attempt the following questions. 12**
- a) Explain partitioning of basic blocks with example.
 - b) Explain various optimization techniques in detail.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) In S attributed definition, the node can get the attributes from its _____.
 - a) Parent node
 - b) left sibling
 - c) right sibling
 - d) both a and b
 - e) all of these
- 2) The bottom up evaluation of expression is done using _____.
 - a) array
 - b) linked list
 - c) Stack
 - d) queue
- 3) In the activation record, the details of callee procedure are stored in _____ field.
 - a) temporaries
 - b) control link
 - c) access link
 - d) machine status
- 4) Collecting all free memory towards one end of memory block is called _____.
 - a) Allocation
 - b) De allocation
 - c) Compaction
 - d) Conservation
- 5) The 3-address code has _____ addresses in one instruction.
 - a) Exactly 3
 - b) At least 3
 - c) At most 3
 - d) all of these
- 6) Filling up the blank spaces after 3 address code generation in conditional statements is called _____.
 - a) Forwarding
 - b) Back patching
 - c) Loop unrolling
 - d) none of these
- 7) The target code generation is based on various issues like _____.
 - a) Register allocation
 - b) Instruction cost
 - c) Code generation from DAGs
 - d) both a and b
- 8) _____ is the only optional phase in compilation process.
 - a) Lexical analysis
 - b) Semantic analysis
 - c) Code generation
 - d) Code optimization

- 9) Loop optimization can be done in which of the following ways?
- a) Code motion
 - b) Induction variable elimination
 - c) Loop unrolling
 - d) all of these
- 10) In the expression, $\text{position} = \text{initial} + \text{rate} * 60$, how many operator tokens will get generated?
- a) 4
 - b) 3
 - c) 6
 - d) 7
- 11) For specification of tokens _____ can be used.
- a) Stack
 - b) regular expression
 - c) finite automata
 - d) queue
- 12) The role of lexical analyzer can be stated as _____.
- a) Generate tokens
 - b) generate parse tree
 - c) Separate out blacks
 - d) both a and c
- 13) _____ is the least powerful bottom up parser.
- a) SLR
 - b) LALR
 - c) Canonical LR
 - d) All of these
- 14) Consider the Given grammar:
G: $S \rightarrow aBCd$, $B \rightarrow b$, $C \rightarrow c$ Then FOLLOW (C) will contain _____
- a) a
 - b) b
 - c) c
 - d) d

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Compiler Construction (BTN03702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) Write a short note on compiler construction tools.
 - b) Explain roles of a lexical analyzer.
 - c) Explain Left factoring with example.
 - d) Explain bottom up evaluation of synthesized attributes.
 - e) Explain Operator precedence parser with example.
- Q.3 Attempt the following questions. 12**
- a) Explain recognition of tokens with example.
 - b) Explain SLR parser with example.

Section – II

- Q.4 Attempt any Four. 16**
- a) Explain symbol table management in detail.
 - b) Explain issues in design of code generator in detail.
 - c) Differentiate between static and stack allocation in detail.
 - d) Explain 3 address code generation for case statement.
 - e) Explain data flow equations with example.
- Q.5 Attempt the following questions. 12**
- a) Explain partitioning of basic blocks with example.
 - b) Explain various optimization techniques in detail.

Seat No.	
----------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) K means and K-medoids are example of which type of clustering method?
 - a) Hierarchical
 - b) Partition
 - c) Probabilistic
 - d) None of the above
- 2) Indicate which is/are a method of clustering _____.
 - a) linkage method
 - b) split and merge
 - c) both a and b
 - d) neither a nor b
- 3) Which of the following statement is true about Business Intelligence?
 - a) BI convert raw data into meaningful information
 - b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
 - c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts
 - d) All of the above
- 4) Business intelligence equips enterprises to gain business advantage from data.
 - a) TRUE
 - b) FALSE
- 5) DSS stands for _____.
 - a) Definite Support System
 - b) Decision Support System
 - c) Defining Support System
 - d) Derived Support System
- 6) Match the sequence of DSS development _____.
 - a) Requirements, Analysis, Planning, Design, implementation, Delivery
 - b) Analysis, Requirements, Planning, Design, Implementation, Delivery
 - c) Requirements, Planning, Analysis, Design, Implementation, Delivery
 - d) Requirements, Planning, Design, Analysis, Implementation, Delivery
- 7) The term _____ indicates the whole set of interrelated activities involved in designing, implementing and using data warehouse.
 - a) Data Warehousing
 - b) Data Repository
 - c) Database
 - d) Data Store

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following** **12**
- a) What is role of Mathematical Model in decision making? Describe the benefits of a Business intelligence system.
 - b) How Data mining process provide useful knowledge to decision makers? Explain with neat diagram.
 - c) Explain OLAP.
 - d) Write a short note on Data exploration.
- Q.3 Attempt any one of the following.** **08**
- a) Draw architecture of business intelligence system and explain the components of business intelligence system.
 - b) What do you mean by Data validation? Explain techniques used for data validation.
- Q.4 Define Decision system. Describe the phases of Decision-making process in detail.** **08**

Section – II

- Q.5 Attempt any four of the following.** **16**
- a) Describe the purpose of Regression models and list the types of regression.
 - b) Write a short note on Neural Network.
 - c) Why exponential smoothing models are used?
 - d) Explain Autoregressive model.
 - e) Define clustering. Explain any one clustering technique.
- Q.6 Attempt any one of the following** **06**
- a) Define Time series. How evaluation and analysis of time series take place?
 - b) Explain Apriori algorithm & general association rules.
- Q.7 Explain any two marketing models with real time example of each.** **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Data can be store, retrieve and updated in _____.
 - a) SMTOP
 - b) FTP
 - c) OLAP
 - d) OLTP
- 2) The classification of the data mining system involves _____.
 - a) Machine learning
 - b) Database technology
 - c) Information Science
 - d) All of the above
- 3) If the coefficient of determination is a positive value, then the regression equation _____.
 - a) must have a positive slope
 - b) must have a negative slope
 - c) could have either a positive or a negative slope
 - d) must have a positive intercept
- 4) The most learning models benefit from a preventive standardization of the data is also called as _____.
 - a) Normalization
 - b) Extraction
 - c) Sampling
 - d) Transformation
- 5) According to forward search scheme, also referred as _____.
 - a) top-down
 - b) trade off
 - c) bottom-up
 - d) None
- 6) _____ analysis, in which the properties of each single attribute of a dataset are investigated.
 - a) bivariate
 - b) multivariate
 - c) both a and b
 - d) Univariate
- 7) A _____ is definitely the most intuitive graphical representation of the relationship between two numerical attributes.
 - a) Scatter plot
 - b) Loses plot
 - c) Quantile-Quantile plot
 - d) Level Curves
- 8) K means and K-medoids are example of which type of clustering method?
 - a) Hierarchical
 - b) Partition
 - c) Probabilistic
 - d) None of the above

- 9) Indicate which is/are a method of clustering _____.
- a) linkage method
 - b) split and merge
 - c) both a and b
 - d) neither a nor b
- 10) Which of the following statement is true about Business Intelligence?
- a) BI convert raw data into meaningful information
 - b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
 - c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts
 - d) All of the above
- 11) Business intelligence equips enterprises to gain business advantage from data.
- a) TRUE
 - b) FALSE
- 12) DSS stands for _____.
- a) Definite Support System
 - b) Decision Support System
 - c) Defining Support System
 - d) Derived Support System
- 13) Match the sequence of DSS development _____.
- a) Requirements, Analysis, Planning, Design, implementation, Delivery
 - b) Analysis, Requirements, Planning, Design, Implementation, Delivery
 - c) Requirements, Planning, Analysis, Design, Implementation, Delivery
 - d) Requirements, Planning, Design, Analysis, Implementation, Delivery
- 14) The term _____ indicates the whole set of interrelated activities involved in designing, implementing and using data warehouse.
- a) Data Warehousing
 - b) Data Repository
 - c) Database
 - d) Data Store

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following** **12**
- a) What is role of Mathematical Model in decision making? Describe the benefits of a Business intelligence system.
 - b) How Data mining process provide useful knowledge to decision makers? Explain with neat diagram.
 - c) Explain OLAP.
 - d) Write a short note on Data exploration.
- Q.3 Attempt any one of the following.** **08**
- a) Draw architecture of business intelligence system and explain the components of business intelligence system.
 - b) What do you mean by Data validation? Explain techniques used for data validation.
- Q.4 Define Decision system. Describe the phases of Decision-making process in detail.** **08**

Section – II

- Q.5 Attempt any four of the following.** **16**
- a) Describe the purpose of Regression models and list the types of regression.
 - b) Write a short note on Neural Network.
 - c) Why exponential smoothing models are used?
 - d) Explain Autoregressive model.
 - e) Define clustering. Explain any one clustering technique.
- Q.6 Attempt any one of the following** **06**
- a) Define Time series. How evaluation and analysis of time series take place?
 - b) Explain Apriori algorithm & general association rules.
- Q.7 Explain any two marketing models with real time example of each.** **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The most learning models benefit from a preventive standardization of the data is also called as _____.

a) Normalization	b) Extraction
c) Sampling	d) Transformation
- 2) According to forward search scheme, also referred as _____.

a) top-down	b) trade off
c) bottom-up	d) None
- 3) _____ analysis, in which the properties of each single attribute of a dataset are investigated.

a) bivariate	b) multivariate
c) both a and b	d) Univariate
- 4) A _____ is definitely the most intuitive graphical representation of the relationship between two numerical attributes.

a) Scatter plot	b) Loses plot
c) Quantile-Quantile plot	d) Level Curves
- 5) K means and K-medoids are example of which type of clustering method?

a) Hierarchical	b) Partition
c) Probabilistic	d) None of the above
- 6) Indicate which is/are a method of clustering _____.

a) linkage method	b) split and merge
c) both a and b	d) neither a nor b
- 7) Which of the following statement is true about Business Intelligence?

a) BI convert raw data into meaningful information	b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts	d) All of the above

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following** **12**
- a) What is role of Mathematical Model in decision making? Describe the benefits of a Business intelligence system.
 - b) How Data mining process provide useful knowledge to decision makers? Explain with neat diagram.
 - c) Explain OLAP.
 - d) Write a short note on Data exploration.
- Q.3 Attempt any one of the following.** **08**
- a) Draw architecture of business intelligence system and explain the components of business intelligence system.
 - b) What do you mean by Data validation? Explain techniques used for data validation.
- Q.4 Define Decision system. Describe the phases of Decision-making process in detail.** **08**

Section – II

- Q.5 Attempt any four of the following.** **16**
- a) Describe the purpose of Regression models and list the types of regression.
 - b) Write a short note on Neural Network.
 - c) Why exponential smoothing models are used?
 - d) Explain Autoregressive model.
 - e) Define clustering. Explain any one clustering technique.
- Q.6 Attempt any one of the following** **06**
- a) Define Time series. How evaluation and analysis of time series take place?
 - b) Explain Apriori algorithm & general association rules.
- Q.7 Explain any two marketing models with real time example of each.** **06**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Match the sequence of DSS development _____.
 - a) Requirements, Analysis, Planning, Design, implementation, Delivery
 - b) Analysis, Requirements, Planning, Design, Implementation, Delivery
 - c) Requirements, Planning, Analysis, Design, Implementation, Delivery
 - d) Requirements, Planning, Design, Analysis, Implementation, Delivery
- 2) The term _____ indicates the whole set of interrelated activities involved in designing, implementing and using data warehouse.
 - a) Data Warehousing
 - b) Data Repository
 - c) Database
 - d) Data Store
- 3) Data can be store, retrieve and updated in _____.
 - a) SMTOP
 - b) FTP
 - c) OLAP
 - d) OLTP
- 4) The classification of the data mining system involves _____.
 - a) Machine learning
 - b) Database technology
 - c) Information Science
 - d) All of the above
- 5) If the coefficient of determination is a positive value, then the regression equation _____.
 - a) must have a positive slope
 - b) must have a negative slope
 - c) could have either a positive or a negative slope
 - d) must have a positive intercept
- 6) The most learning models benefit from a preventive standardization of the data is also called as _____.
 - a) Normalization
 - b) Extraction
 - c) Sampling
 - d) Transformation
- 7) According to forward search scheme, also referred as _____.
 - a) top-down
 - b) trade off
 - c) bottom-up
 - d) None

- 8) _____ analysis, in which the properties of each single attribute of a dataset are investigated.
- a) bivariate
 - b) multivariate
 - c) both a and b
 - d) Univariate
- 9) A _____ is definitely the most intuitive graphical representation of the relationship between two numerical attributes.
- a) Scatter plot
 - b) Loses plot
 - c) Quantile-Quantile plot
 - d) Level Curves
- 10) K means and K-medoids are example of which type of clustering method?
- a) Hierarchical
 - b) Partition
 - c) Probabilistic
 - d) None of the above
- 11) Indicate which is/are a method of clustering _____.
- a) linkage method
 - b) split and merge
 - c) both a and b
 - d) neither a nor b
- 12) Which of the following statement is true about Business Intelligence?
- a) BI convert raw data into meaningful information
 - b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
 - c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts
 - d) All of the above
- 13) Business intelligence equips enterprises to gain business advantage from data.
- a) TRUE
 - b) FALSE
- 14) DSS stands for _____.
- a) Definite Support System
 - b) Decision Support System
 - c) Defining Support System
 - d) Derived Support System

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Business Intelligence (BTN03706)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following** **12**
- What is role of Mathematical Model in decision making? Describe the benefits of a Business intelligence system.
 - How Data mining process provide useful knowledge to decision makers? Explain with neat diagram.
 - Explain OLAP.
 - Write a short note on Data exploration.
- Q.3 Attempt any one of the following.** **08**
- Draw architecture of business intelligence system and explain the components of business intelligence system.
 - What do you mean by Data validation? Explain techniques used for data validation.
- Q.4 Define Decision system. Describe the phases of Decision-making process in detail.** **08**

Section – II

- Q.5 Attempt any four of the following.** **16**
- Describe the purpose of Regression models and list the types of regression.
 - Write a short note on Neural Network.
 - Why exponential smoothing models are used?
 - Explain Autoregressive model.
 - Define clustering. Explain any one clustering technique.
- Q.6 Attempt any one of the following** **06**
- Define Time series. How evaluation and analysis of time series take place?
 - Explain Apriori algorithm & general association rules.
- Q.7 Explain any two marketing models with real time example of each.** **06**

Seat
No.

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data?
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Hybrid learning
 - d) Reinforcement learning
- 2) Which one of the following refers to querying the unstructured textual data?
 - a) Information access
 - b) Information update
 - c) Information retrieval
 - d) Information manipulation
- 3) Which of the following can be considered as the correct process of Data Mining?
 - a) Infrastructure, Exploration, Analysis, Interpretation, Exploitation
 - b) Exploration, Infrastructure, Analysis, Interpretation, Exploitation
 - c) Exploration, Infrastructure, Interpretation, Analysis, Exploitation
 - d) Exploration, Infrastructure, Analysis, Exploitation, Interpretation
- 4) Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?
 - a) Warehousing
 - b) Data Mining
 - c) Text Mining
 - d) Data Selection
- 5) What is KDD in data mining?
 - a) Knowledge Discovery Database
 - b) Knowledge Discovery Data
 - c) Knowledge Data definition
 - d) Knowledge data house
- 6) What are the functions of Data Mining?
 - a) Association and correctional analysis classification
 - b) Prediction and characterization
 - c) Cluster analysis and Evolution analysis
 - d) All of the above

- 7) Which one of the following statements about the K-means clustering is incorrect?
- The goal of the k-means clustering is to partition (n) observation into (k) clusters
 - K-means clustering can be defined as the method of quantization
 - The nearest neighbor is the same as the K-means
 - All of the above
- 8) The following given statement can be considered as the examples of _____. Suppose one wants to predict the number of newborns according to the size of storks' population by performing supervised learning.
- Structural equation modeling
 - Clustering
 - Regression
 - Classification
- 9) Which of the following statement is true about the classification?
- It is a measure of accuracy
 - It is a subdivision of a set
 - It is the task of assigning a classification
 - None of the above
- 10) Which of the following can be considered as the classification or mapping of a set or class with some predefined group or classes?
- | | |
|-----------------------|--------------------------|
| a) Data set | b) Data Characterization |
| c) Data Sub Structure | d) Data Discrimination |
- 11) The analysis performed to uncover the interesting statistical correlation between associated attributes value pairs are known as the _____.
- | | |
|--------------------------|--------------------------|
| a) Mining of association | b) Mining of correlation |
| c) Mining of clusters | d) All of the above |
- 12) Which one of the following can be defined as the data object which does not comply with the general behavior (or the model of available data)?
- | | |
|------------------------|----------------------|
| a) Evaluation Analysis | b) Outliner Analysis |
| c) Classification | d) Prediction |
- 13) Which one of the following statements is not correct about the data cleaning?
- It refers to the process of data cleaning
 - It refers to the transformation of wrong data into correct data
 - It refers to correcting inconsistent data
 - All of the above
- 14) The issues like efficiency, scalability of data mining algorithms comes under _____.
- Performance issues
 - Diverse data type issues
 - Mining methodology and user interaction
 - All of the above

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- Summarize the KDD process in detail.
- Compare supervise and unsupervised machine learning.
- Elaborate Histogram with example.
- How data transformation is achieved using normalization?

Q.3 Attempt any Two. 16

- Suppose a group of 12 sales price records has been sorted as follows
5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215
Partition them into three bins by each of the following methods:
 - equal-frequency (equal-depth) partitioning
 - equal-width partitioning
 - clustering
- Apply Apriori Algorithm in Data Mining for the following dataset. Consider threshold support level of over 50 percent.

Transaction ID	Rice	Pulse	Oil	Milk	Apple
t1	1	1	1	0	0
t2	0	1	1	1	0
t3	0	0	0	1	1
t4	1	1	0	1	0
t5	1	1	1	0	1
t6	1	1	1	1	1

- What are the major tasks involved in data preprocessing?

Section – II

Q.4 Attempt any Three. 12

- How are structure, content and usage dealt with in web mining?
- State the difference Between Data Mining and Web Mining.
- Explain Text Mining in Data Mining.
- Discuss - Challenges of Outlier Detection in Data Mining.

Q.5 Attempt any Two. 16

- Illustrate the Partition algorithm with example.
- What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines.
- Elaborate the types of outliers. Identify an outlier using clustering-based outlier detection method with suitable example.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The following given statement can be considered as the examples of _____
 Suppose one wants to predict the number of newborns according to the size of storks' population by performing supervised learning.
 - a) Structural equation modeling
 - b) Clustering
 - c) Regression
 - d) Classification
- 2) Which of the following statement is true about the classification?
 - a) It is a measure of accuracy
 - b) It is a subdivision of a set
 - c) It is the task of assigning a classification
 - d) None of the above
- 3) Which of the following can be considered as the classification or mapping of a set or class with some predefined group or classes?
 - a) Data set
 - b) Data Characterization
 - c) Data Sub Structure
 - d) Data Discrimination
- 4) The analysis performed to uncover the interesting statistical correlation between associated attributes value pairs are known as the _____.
 - a) Mining of association
 - b) Mining of correlation
 - c) Mining of clusters
 - d) All of the above
- 5) Which one of the following can be defined as the data object which does not comply with the general behavior (or the model of available data)?
 - a) Evaluation Analysis
 - b) Outliner Analysis
 - c) Classification
 - d) Prediction
- 6) Which one of the following statements is not correct about the data cleaning?
 - a) It refers to the process of data cleaning
 - b) It refers to the transformation of wrong data into correct data
 - c) It refers to correcting inconsistent data
 - d) All of the above

- 7) The issues like efficiency, scalability of data mining algorithms comes under _____.
- Performance issues
 - Diverse data type issues
 - Mining methodology and user interaction
 - All of the above
- 8) Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data?
- Supervised learning
 - Unsupervised learning
 - Hybrid learning
 - Reinforcement learning
- 9) Which one of the following refers to querying the unstructured textual data?
- Information access
 - Information update
 - Information retrieval
 - Information manipulation
- 10) Which of the following can be considered as the correct process of Data Mining?
- Infrastructure, Exploration, Analysis, Interpretation, Exploitation
 - Exploration, Infrastructure, Analysis, Interpretation, Exploitation
 - Exploration, Infrastructure, Interpretation, Analysis, Exploitation
 - Exploration, Infrastructure, Analysis, Exploitation, Interpretation
- 11) Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?
- Warehousing
 - Data Mining
 - Text Mining
 - Data Selection
- 12) What is KDD in data mining?
- Knowledge Discovery Database
 - Knowledge Discovery Data
 - Knowledge Data definition
 - Knowledge data house
- 13) What are the functions of Data Mining?
- Association and correctional analysis classification
 - Prediction and characterization
 - Cluster analysis and Evolution analysis
 - All of the above
- 14) Which one of the following statements about the K-means clustering is incorrect?
- The goal of the k-means clustering is to partition (n) observation into (k) clusters
 - K-means clustering can be defined as the method of quantization
 - The nearest neighbor is the same as the K-means
 - All of the above

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- Summarize the KDD process in detail.
- Compare supervise and unsupervised machine learning.
- Elaborate Histogram with example.
- How data transformation is achieved using normalization?

Q.3 Attempt any Two. 16

- Suppose a group of 12 sales price records has been sorted as follows
5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215
Partition them into three bins by each of the following methods:
 - equal-frequency (equal-depth) partitioning
 - equal-width partitioning
 - clustering
- Apply Apriori Algorithm in Data Mining for the following dataset. Consider threshold support level of over 50 percent.

Transaction ID	Rice	Pulse	Oil	Milk	Apple
t1	1	1	1	0	0
t2	0	1	1	1	0
t3	0	0	0	1	1
t4	1	1	0	1	0
t5	1	1	1	0	1
t6	1	1	1	1	1

- What are the major tasks involved in data preprocessing?

Section – II

Q.4 Attempt any Three. 12

- How are structure, content and usage dealt with in web mining?
- State the difference Between Data Mining and Web Mining.
- Explain Text Mining in Data Mining.
- Discuss - Challenges of Outlier Detection in Data Mining.

Q.5 Attempt any Two. 16

- Illustrate the Partition algorithm with example.
- What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines.
- Elaborate the types of outliers. Identify an outlier using clustering-based outlier detection method with suitable example.

Seat
No.

--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The analysis performed to uncover the interesting statistical correlation between associated attributes value pairs are known as the _____.
 a) Mining of association b) Mining of correlation
 c) Mining of clusters d) All of the above
- 2) Which one of the following can be defined as the data object which does not comply with the general behavior (or the model of available data)?
 a) Evaluation Analysis b) Outliner Analysis
 c) Classification d) Prediction
- 3) Which one of the following statements is not correct about the data cleaning?
 a) It refers to the process of data cleaning
 b) It refers to the transformation of wrong data into correct data
 c) It refers to correcting inconsistent data
 d) All of the above
- 4) The issues like efficiency, scalability of data mining algorithms comes under _____.
 a) Performance issues
 b) Diverse data type issues
 c) Mining methodology and user interaction
 d) All of the above
- 5) Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data?
 a) Supervised learning b) Unsupervised learning
 c) Hybrid learning d) Reinforcement learning
- 6) Which one of the following refers to querying the unstructured textual data?
 a) Information access b) Information update
 c) Information retrieval d) Information manipulation

- 7) Which of the following can be considered as the correct process of Data Mining?
- Infrastructure, Exploration, Analysis, Interpretation, Exploitation
 - Exploration, Infrastructure, Analysis, Interpretation, Exploitation
 - Exploration, Infrastructure, Interpretation, Analysis, Exploitation
 - Exploration, Infrastructure, Analysis, Exploitation, Interpretation
- 8) Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?
- Warehousing
 - Data Mining
 - Text Mining
 - Data Selection
- 9) What is KDD in data mining?
- Knowledge Discovery Database
 - Knowledge Discovery Data
 - Knowledge Data definition
 - Knowledge data house
- 10) What are the functions of Data Mining?
- Association and correctional analysis classification
 - Prediction and characterization
 - Cluster analysis and Evolution analysis
 - All of the above
- 11) Which one of the following statements about the K-means clustering is incorrect?
- The goal of the k-means clustering is to partition (n) observation into (k) clusters
 - K-means clustering can be defined as the method of quantization
 - The nearest neighbor is the same as the K-means
 - All of the above
- 12) The following given statement can be considered as the examples of _____
Suppose one wants to predict the number of newborns according to the size of storks' population by performing supervised learning.
- Structural equation modeling
 - Clustering
 - Regression
 - Classification
- 13) Which of the following statement is true about the classification?
- It is a measure of accuracy
 - It is a subdivision of a set
 - It is the task of assigning a classification
 - None of the above
- 14) Which of the following can be considered as the classification or mapping of a set or class with some predefined group or classes?
- Data set
 - Data Characterization
 - Data Sub Structure
 - Data Discrimination

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. **12**

- Summarize the KDD process in detail.
- Compare supervise and unsupervised machine learning.
- Elaborate Histogram with example.
- How data transformation is achieved using normalization?

Q.3 Attempt any Two. **16**

- Suppose a group of 12 sales price records has been sorted as follows
5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215
Partition them into three bins by each of the following methods:
 - equal-frequency (equal-depth) partitioning
 - equal-width partitioning
 - clustering
- Apply Apriori Algorithm in Data Mining for the following dataset. Consider threshold support level of over 50 percent.

Transaction ID	Rice	Pulse	Oil	Milk	Apple
t1	1	1	1	0	0
t2	0	1	1	1	0
t3	0	0	0	1	1
t4	1	1	0	1	0
t5	1	1	1	0	1
t6	1	1	1	1	1

- What are the major tasks involved in data preprocessing?

Section – II

Q.4 Attempt any Three. **12**

- How are structure, content and usage dealt with in web mining?
- State the difference Between Data Mining and Web Mining.
- Explain Text Mining in Data Mining.
- Discuss - Challenges of Outlier Detection in Data Mining.

Q.5 Attempt any Two. **16**

- Illustrate the Partition algorithm with example.
- What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines.
- Elaborate the types of outliers. Identify an outlier using clustering-based outlier detection method with suitable example.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What are the functions of Data Mining?
 - a) Association and correctional analysis classification
 - b) Prediction and characterization
 - c) Cluster analysis and Evolution analysis
 - d) All of the above
- 2) Which one of the following statements about the K-means clustering is incorrect?
 - a) The goal of the k-means clustering is to partition (n) observation into (k) clusters
 - b) K-means clustering can be defined as the method of quantization
 - c) The nearest neighbor is the same as the K-means
 - d) All of the above
- 3) The following given statement can be considered as the examples of _____
 Suppose one wants to predict the number of newborns according to the size of storks' population by performing supervised learning.
 - a) Structural equation modeling
 - b) Clustering
 - c) Regression
 - d) Classification
- 4) Which of the following statement is true about the classification?
 - a) It is a measure of accuracy
 - b) It is a subdivision of a set
 - c) It is the task of assigning a classification
 - d) None of the above
- 5) Which of the following can be considered as the classification or mapping of a set or class with some predefined group or classes?

a) Data set	b) Data Characterization
c) Data Sub Structure	d) Data Discrimination

- 6) The analysis performed to uncover the interesting statistical correlation between associated attributes value pairs are known as the _____.
a) Mining of association b) Mining of correlation
c) Mining of clusters d) All of the above
- 7) Which one of the following can be defined as the data object which does not comply with the general behavior (or the model of available data)?
a) Evaluation Analysis b) Outliner Analysis
c) Classification d) Prediction
- 8) Which one of the following statements is not correct about the data cleaning?
a) It refers to the process of data cleaning
b) It refers to the transformation of wrong data into correct data
c) It refers to correcting inconsistent data
d) All of the above
- 9) The issues like efficiency, scalability of data mining algorithms comes under _____.
a) Performance issues
b) Diverse data type issues
c) Mining methodology and user interaction
d) All of the above
- 10) Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data?
a) Supervised learning b) Unsupervised learning
c) Hybrid learning d) Reinforcement learning
- 11) Which one of the following refers to querying the unstructured textual data?
a) Information access b) Information update
c) Information retrieval d) Information manipulation
- 12) Which of the following can be considered as the correct process of Data Mining?
a) Infrastructure, Exploration, Analysis, Interpretation, Exploitation
b) Exploration, Infrastructure, Analysis, Interpretation, Exploitation
c) Exploration, Infrastructure, Interpretation, Analysis, Exploitation
d) Exploration, Infrastructure, Analysis, Exploitation, Interpretation
- 13) Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?
a) Warehousing b) Data Mining
c) Text Mining d) Data Selection
- 14) What is KDD in data mining?
a) Knowledge Discovery Database
b) Knowledge Discovery Data
c) Knowledge Data definition
d) Knowledge data house

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (BTN03707)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. **12**

- Summarize the KDD process in detail.
- Compare supervise and unsupervised machine learning.
- Elaborate Histogram with example.
- How data transformation is achieved using normalization?

Q.3 Attempt any Two. **16**

- Suppose a group of 12 sales price records has been sorted as follows
5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215
Partition them into three bins by each of the following methods:
 - equal-frequency (equal-depth) partitioning
 - equal-width partitioning
 - clustering
- Apply Apriori Algorithm in Data Mining for the following dataset. Consider threshold support level of over 50 percent.

Transaction ID	Rice	Pulse	Oil	Milk	Apple
t1	1	1	1	0	0
t2	0	1	1	1	0
t3	0	0	0	1	1
t4	1	1	0	1	0
t5	1	1	1	0	1
t6	1	1	1	1	1

- What are the major tasks involved in data preprocessing?

Section – II

Q.4 Attempt any Three. **12**

- How are structure, content and usage dealt with in web mining?
- State the difference Between Data Mining and Web Mining.
- Explain Text Mining in Data Mining.
- Discuss - Challenges of Outlier Detection in Data Mining.

Q.5 Attempt any Two. **16**

- Illustrate the Partition algorithm with example.
- What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines.
- Elaborate the types of outliers. Identify an outlier using clustering-based outlier detection method with suitable example.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is meant by transparency in a distributed system?
 - a) The system is invisible to the end users
 - b) The system is easy to see and understand
 - c) The system hides its complexity from the users and applications
 - d) The system is transparent in terms of cost and pricing
- 2) The local operating system on the server machine passes the incoming packets to the _____.
 - a) client stub
 - b) server stub
 - c) client operating system
 - d) client process
- 3) Which of the following is an example of a distributed computing framework commonly used for big data processing?
 - a) Microsoft Excel
 - b) Apache Hadoop
 - c) Microsoft Word
 - d) Adobe Photoshop
- 4) What is the CAP theorem in distributed systems?
 - a) It describes the characteristics of a good consistency in a distributed environment.
 - b) It states that a distributed system cannot simultaneously guarantee Consistency, Availability, and Partition tolerance.
 - c) It is a theorem about the behavior of distributed systems under high load.
 - d) It is a theorem about cryptography in distributed systems
- 5) In a distributed database system, what is data fragmentation?
 - a) Breaking data into smaller pieces for efficient storage and retrieval
 - b) Encrypting data to protect it from unauthorized access
 - c) Creating multiple copies of the data for redundancy
 - d) Combining data from different sources into a single database

- 6) What is a load balancer in a distributed system?
- a) A device or software component that evenly distributes network traffic across multiple servers or resources to ensure high availability and reliability.
 - b) A component that synchronizes the clocks of all computers in the network.
 - c) A tool for measuring the network bandwidth.
 - d) A firewall that protects the network from external threats.
- 7) What is a distributed consensus algorithm used to achieve fault tolerance in a distributed system?
- a) SQL
 - b) NoSQL
 - c) Blockchain
 - d) Docker
- 8) Which of the following is a key characteristic of a distributed system?
- a) Centralized control
 - b) Limited scalability
 - c) Low fault tolerance
 - d) Decentralized control
- 9) Which communication model is commonly used in distributed systems to facilitate inter-process communication?
- a) Synchronous communication
 - b) Asynchronous communication
 - c) Serial communication
 - d) Parallel communication
- 10) If a is the event of sending a message and b is the event of receiving a message then which condition is not satisfied by Happened-before relation?
- a) $a \rightarrow b$
 - b) If $a \rightarrow b$, $b \rightarrow c$, then $a \rightarrow c$
 - c) $a \rightarrow a$
 - d) None of the mentioned
- 11) In a distributed system, what is the role of a naming service?
- a) It assigns names to processes and resources in a consistent manner.
 - b) It manages the distribution of software updates.
 - c) It ensures that all processes run on the same machine.
 - d) It is responsible for load balancing.
- 12) What is the purpose of a distributed file system?
- a) To organize files on a single server
 - b) To store files across multiple servers for fault tolerance and scalability
 - c) To encrypt files during transmission
 - d) To compress files for efficient storage
- 13) What is a primary benefit of using distributed systems?
- a) Lower cost
 - b) Centralized control
 - c) Improved fault tolerance
 - d) Simplicity of management
- 14) _____ is not possible in distributed file system.
- a) File replication
 - b) Migration
 - c) Client interface
 - d) Remote access

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following. 12**
- a) Compare distributed systems with network operating system?
 - b) With diagram explain workstation-server model of distributed systems
 - c) What is process migration? List the steps involved in process migration.
 - d) With example illustrate the implementation of logical clocks using counters.
- Q.3 Attempt any one of the following. 08**
- a) What is non-idempotent routine? Give examples of idempotent and non-idempotent routines.
 - b) How does message passing differ from shared memory in distributed systems? Explain in detail.
- Q.4 What is a Remote Procedure Call (RPC)? How does RPC work? What are the components of an RPC system? What is the purpose of the stub in RPC? 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- a) What is Distributed Mutual Exclusion, and why is it important in distributed systems?
 - b) Explain with diagram Richard Agarwala's algorithm for achieving Distributed Mutual Exclusion,
 - c) What are the trade-offs and performance considerations when choosing a specific Distributed Mutual Exclusion algorithm for a distributed system?
 - d) What is the difference between centralized and distributed deadlock detection?
- Q.6 Attempt any one of the following. 08**
- a) What are the key challenges in designing and implementing a Distributed File System?
 - b) Discuss the relative advantages and disadvantages of using full file caching and block caching models for the data caching mechanism of a distributed file system.
- Q.7 Explain the algorithms used for the implementation of Distributed shared memory. 08**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is a key characteristic of a distributed system?
 - a) Centralized control
 - b) Limited scalability
 - c) Low fault tolerance
 - d) Decentralized control
- 2) Which communication model is commonly used in distributed systems to facilitate inter-process communication?
 - a) Synchronous communication
 - b) Asynchronous communication
 - c) Serial communication
 - d) Parallel communication
- 3) If a is the event of sending a message and b is the event of receiving a message then which condition is not satisfied by Happened-before relation?
 - a) $a \rightarrow b$
 - b) If $a \rightarrow b$, $b \rightarrow c$, then $a \rightarrow c$
 - c) $a \rightarrow a$
 - d) None of the mentioned
- 4) In a distributed system, what is the role of a naming service?
 - a) It assigns names to processes and resources in a consistent manner.
 - b) It manages the distribution of software updates.
 - c) It ensures that all processes run on the same machine.
 - d) It is responsible for load balancing.
- 5) What is the purpose of a distributed file system?
 - a) To organize files on a single server
 - b) To store files across multiple servers for fault tolerance and scalability
 - c) To encrypt files during transmission
 - d) To compress files for efficient storage
- 6) What is a primary benefit of using distributed systems?
 - a) Lower cost
 - b) Centralized control
 - c) Improved fault tolerance
 - d) Simplicity of management
- 7) _____ is not possible in distributed file system.
 - a) File replication
 - b) Migration
 - c) Client interface
 - d) Remote access

- 8) What is meant by transparency in a distributed system?
- a) The system is invisible to the end users
 - b) The system is easy to see and understand
 - c) The system hides its complexity from the users and applications
 - d) The system is transparent in terms of cost and pricing
- 9) The local operating system on the server machine passes the incoming packets to the _____.
- a) client stub
 - b) server stub
 - c) client operating system
 - d) client process
- 10) Which of the following is an example of a distributed computing framework commonly used for big data processing?
- a) Microsoft Excel
 - b) Apache Hadoop
 - c) Microsoft Word
 - d) Adobe Photoshop
- 11) What is the CAP theorem in distributed systems?
- a) It describes the characteristics of a good consistency in a distributed environment.
 - b) It states that a distributed system cannot simultaneously guarantee Consistency, Availability, and Partition tolerance.
 - c) It is a theorem about the behavior of distributed systems under high load.
 - d) It is a theorem about cryptography in distributed systems
- 12) In a distributed database system, what is data fragmentation?
- a) Breaking data into smaller pieces for efficient storage and retrieval
 - b) Encrypting data to protect it from unauthorized access
 - c) Creating multiple copies of the data for redundancy
 - d) Combining data from different sources into a single database
- 13) What is a load balancer in a distributed system?
- a) A device or software component that evenly distributes network traffic across multiple servers or resources to ensure high availability and reliability.
 - b) A component that synchronizes the clocks of all computers in the network.
 - c) A tool for measuring the network bandwidth.
 - d) A firewall that protects the network from external threats.
- 14) What is a distributed consensus algorithm used to achieve fault tolerance in a distributed system?
- a) SQL
 - b) NoSQL
 - c) Blockchain
 - d) Docker

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following. 12**
- a) Compare distributed systems with network operating system?
 - b) With diagram explain workstation-server model of distributed systems
 - c) What is process migration? List the steps involved in process migration.
 - d) With example illustrate the implementation of logical clocks using counters.
- Q.3 Attempt any one of the following. 08**
- a) What is non-idempotent routine? Give examples of idempotent and non-idempotent routines.
 - b) How does message passing differ from shared memory in distributed systems? Explain in detail.
- Q.4 What is a Remote Procedure Call (RPC)? How does RPC work? What are the components of an RPC system? What is the purpose of the stub in RPC? 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- a) What is Distributed Mutual Exclusion, and why is it important in distributed systems?
 - b) Explain with diagram Richard Agarwala's algorithm for achieving Distributed Mutual Exclusion,
 - c) What are the trade-offs and performance considerations when choosing a specific Distributed Mutual Exclusion algorithm for a distributed system?
 - d) What is the difference between centralized and distributed deadlock detection?
- Q.6 Attempt any one of the following. 08**
- a) What are the key challenges in designing and implementing a Distributed File System?
 - b) Discuss the relative advantages and disadvantages of using full file caching and block caching models for the data caching mechanism of a distributed file system.
- Q.7 Explain the algorithms used for the implementation of Distributed shared memory. 08**

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In a distributed system, what is the role of a naming service?
 - a) It assigns names to processes and resources in a consistent manner.
 - b) It manages the distribution of software updates.
 - c) It ensures that all processes run on the same machine.
 - d) It is responsible for load balancing.
- 2) What is the purpose of a distributed file system?
 - a) To organize files on a single server
 - b) To store files across multiple servers for fault tolerance and scalability
 - c) To encrypt files during transmission
 - d) To compress files for efficient storage
- 3) What is a primary benefit of using distributed systems?

a) Lower cost	b) Centralized control
c) Improved fault tolerance	d) Simplicity of management
- 4) _____ is not possible in distributed file system.

a) File replication	b) Migration
c) Client interface	d) Remote access
- 5) What is meant by transparency in a distributed system?
 - a) The system is invisible to the end users
 - b) The system is easy to see and understand
 - c) The system hides its complexity from the users and applications
 - d) The system is transparent in terms of cost and pricing
- 6) The local operating system on the server machine passes the incoming packets to the _____.

a) client stub	b) server stub
c) client operating system	d) client process
- 7) Which of the following is an example of a distributed computing framework commonly used for big data processing?

a) Microsoft Excel	b) Apache Hadoop
c) Microsoft Word	d) Adobe Photoshop

- 8) What is the CAP theorem in distributed systems?
- a) It describes the characteristics of a good consistency in a distributed environment.
 - b) It states that a distributed system cannot simultaneously guarantee Consistency, Availability, and Partition tolerance.
 - c) It is a theorem about the behavior of distributed systems under high load.
 - d) It is a theorem about cryptography in distributed systems
- 9) In a distributed database system, what is data fragmentation?
- a) Breaking data into smaller pieces for efficient storage and retrieval
 - b) Encrypting data to protect it from unauthorized access
 - c) Creating multiple copies of the data for redundancy
 - d) Combining data from different sources into a single database
- 10) What is a load balancer in a distributed system?
- a) A device or software component that evenly distributes network traffic across multiple servers or resources to ensure high availability and reliability.
 - b) A component that synchronizes the clocks of all computers in the network.
 - c) A tool for measuring the network bandwidth.
 - d) A firewall that protects the network from external threats.
- 11) What is a distributed consensus algorithm used to achieve fault tolerance in a distributed system?
- a) SQL
 - b) NoSQL
 - c) Blockchain
 - d) Docker
- 12) Which of the following is a key characteristic of a distributed system?
- a) Centralized control
 - b) Limited scalability
 - c) Low fault tolerance
 - d) Decentralized control
- 13) Which communication model is commonly used in distributed systems to facilitate inter-process communication?
- a) Synchronous communication
 - b) Asynchronous communication
 - c) Serial communication
 - d) Parallel communication
- 14) If a is the event of sending a message and b is the event of receiving a message then which condition is not satisfied by Happened-before relation?
- a) $a \rightarrow b$
 - b) If $a \rightarrow b$, $b \rightarrow c$, then $a \rightarrow c$
 - c) $a \rightarrow a$
 - d) None of the mentioned

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following. 12**
- a) Compare distributed systems with network operating system?
 - b) With diagram explain workstation-server model of distributed systems
 - c) What is process migration? List the steps involved in process migration.
 - d) With example illustrate the implementation of logical clocks using counters.
- Q.3 Attempt any one of the following. 08**
- a) What is non-idempotent routine? Give examples of idempotent and non-idempotent routines.
 - b) How does message passing differ from shared memory in distributed systems? Explain in detail.
- Q.4 What is a Remote Procedure Call (RPC)? How does RPC work? What are the components of an RPC system? What is the purpose of the stub in RPC? 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- a) What is Distributed Mutual Exclusion, and why is it important in distributed systems?
 - b) Explain with diagram Richard Agarwala's algorithm for achieving Distributed Mutual Exclusion,
 - c) What are the trade-offs and performance considerations when choosing a specific Distributed Mutual Exclusion algorithm for a distributed system?
 - d) What is the difference between centralized and distributed deadlock detection?
- Q.6 Attempt any one of the following. 08**
- a) What are the key challenges in designing and implementing a Distributed File System?
 - b) Discuss the relative advantages and disadvantages of using full file caching and block caching models for the data caching mechanism of a distributed file system.
- Q.7 Explain the algorithms used for the implementation of Distributed shared memory. 08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is a load balancer in a distributed system?
 - a) A device or software component that evenly distributes network traffic across multiple servers or resources to ensure high availability and reliability.
 - b) A component that synchronizes the clocks of all computers in the network.
 - c) A tool for measuring the network bandwidth.
 - d) A firewall that protects the network from external threats.
- 2) What is a distributed consensus algorithm used to achieve fault tolerance in a distributed system?

a) SQL	b) NoSQL
c) Blockchain	d) Docker
- 3) Which of the following is a key characteristic of a distributed system?

a) Centralized control	b) Limited scalability
c) Low fault tolerance	d) Decentralized control
- 4) Which communication model is commonly used in distributed systems to facilitate inter-process communication?
 - a) Synchronous communication
 - b) Asynchronous communication
 - c) Serial communication
 - d) Parallel communication
- 5) If a is the event of sending a message and b is the event of receiving a message then which condition is not satisfied by Happened-before relation?
 - a) $a \rightarrow b$
 - b) If $a \rightarrow b$, $b \rightarrow c$, then $a \rightarrow c$
 - c) $a \rightarrow a$
 - d) None of the mentioned
- 6) In a distributed system, what is the role of a naming service?
 - a) It assigns names to processes and resources in a consistent manner.
 - b) It manages the distribution of software updates.
 - c) It ensures that all processes run on the same machine.
 - d) It is responsible for load balancing.

- 7) What is the purpose of a distributed file system?
- To organize files on a single server
 - To store files across multiple servers for fault tolerance and scalability
 - To encrypt files during transmission
 - To compress files for efficient storage
- 8) What is a primary benefit of using distributed systems?
- Lower cost
 - Centralized control
 - Improved fault tolerance
 - Simplicity of management
- 9) _____ is not possible in distributed file system.
- File replication
 - Migration
 - Client interface
 - Remote access
- 10) What is meant by transparency in a distributed system?
- The system is invisible to the end users
 - The system is easy to see and understand
 - The system hides its complexity from the users and applications
 - The system is transparent in terms of cost and pricing
- 11) The local operating system on the server machine passes the incoming packets to the _____.
- client stub
 - server stub
 - client operating system
 - client process
- 12) Which of the following is an example of a distributed computing framework commonly used for big data processing?
- Microsoft Excel
 - Apache Hadoop
 - Microsoft Word
 - Adobe Photoshop
- 13) What is the CAP theorem in distributed systems?
- It describes the characteristics of a good consistency in a distributed environment.
 - It states that a distributed system cannot simultaneously guarantee Consistency, Availability, and Partition tolerance.
 - It is a theorem about the behavior of distributed systems under high load.
 - It is a theorem about cryptography in distributed systems
- 14) In a distributed database system, what is data fragmentation?
- Breaking data into smaller pieces for efficient storage and retrieval
 - Encrypting data to protect it from unauthorized access
 - Creating multiple copies of the data for redundancy
 - Combining data from different sources into a single database

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (BTN03708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three of the following. 12**
- a) Compare distributed systems with network operating system?
 - b) With diagram explain workstation-server model of distributed systems
 - c) What is process migration? List the steps involved in process migration.
 - d) With example illustrate the implementation of logical clocks using counters.
- Q.3 Attempt any one of the following. 08**
- a) What is non-idempotent routine? Give examples of idempotent and non-idempotent routines.
 - b) How does message passing differ from shared memory in distributed systems? Explain in detail.
- Q.4 What is a Remote Procedure Call (RPC)? How does RPC work? What are the components of an RPC system? What is the purpose of the stub in RPC? 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- a) What is Distributed Mutual Exclusion, and why is it important in distributed systems?
 - b) Explain with diagram Richard Agarwala's algorithm for achieving Distributed Mutual Exclusion,
 - c) What are the trade-offs and performance considerations when choosing a specific Distributed Mutual Exclusion algorithm for a distributed system?
 - d) What is the difference between centralized and distributed deadlock detection?
- Q.6 Attempt any one of the following. 08**
- a) What are the key challenges in designing and implementing a Distributed File System?
 - b) Discuss the relative advantages and disadvantages of using full file caching and block caching models for the data caching mechanism of a distributed file system.
- Q.7 Explain the algorithms used for the implementation of Distributed shared memory. 08**

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A TPS is commonly known as, _____.
 a) Trained Processing System b) Transaction Processing System
 c) Trainee presentable System d) None of the above
- 2) The _____ can help you choose a product.
 a) office automation system
 b) management information system
 c) transaction processing system
 d) decision support system
- 3) Information systems that are developed in response to corporate business initiative are _____.
 a) Marketing Information System
 b) Management Information System
 c) Strategic Information System
 d) None of these
- 4) A Strategic Management Information System offers _____.
 a) Business intelligence b) Organization flow
 c) Process enhancement d) Process flow
- 5) Which of the following is an ethical way for organizations to handle a MIS?
 a) Hire the best private security to protect the information.
 b) Place a sign in the office that all hackers will be prosecuted.
 c) Place the MIS behind a firewall and protect it from hackers.
 d) Place a big sign in front that says they have a protected MIS system.
- 6) _____ is the first step in system development life cycle.
 a) Planning b) Designing
 c) Analysis d) Implementation

- 7) The information of MIS comes from the boot _____ source.
- a) Internal
 - b) External
 - c) Superficial
 - d) Internal and external
- 8) Which type of infrastructure service stores and manages corporate data and provides capabilities for analyzing the data?
- a) Networking
 - b) Telecommunication
 - c) Data Management
 - d) VOIP
- 9) Business intelligence (BI) is a broad category of application programs which includes _____.
- a) Decision Support
 - b) Data mining
 - c) OLAP
 - d) All of the mentioned
- 10) _____ is the practice and precautions taken to protect valuable information from unauthorized access, recording, disclosure or destruction.
- a) Network Security
 - b) Database Security
 - c) Information Security
 - d) Physical Security
- 11) ERP supports _____ currency Value.
- a) Multiple
 - b) Single
 - c) Two
 - d) Five
- 12) Which dimension of e-commerce enables commerce beyond the boundaries of the country?
- a) Richness
 - b) Interactivity
 - c) Global reach
 - d) Ubiquity
- 13) Which of the following is not a current application of m-commerce?
- a) Phone Zagat
 - b) Red Laser
 - c) JoJo Contactless Payment Service
 - d) Zynga Farmer Exchange
- 14) During a DoS attack, the regular traffic on the target _____ will be either dawdling down or entirely interrupted.
- a) Network
 - b) System
 - c) Website
 - d) Router

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. 16

- What is Management Information Systems? Explain its characteristics.
- Explain System for Collaboration & Social business.
- Explain the concept of Strategic Information System.
- What are major problem areas in information System?
- How MIS supports to the management in Organization?

Q.3 Attempt any Two. 12

- Explain in detail FIVE Moral dimensions of the Information Age.
- Explain in detail Tools and technologies for collaboration and social business.
- What are different application of MIS in Various functional areas?

Section – II

Q.4 Attempt any Four. 16

- What is IT infrastructure & explain its components?
- Explain in detail Firewall.
- Explain tools of Security Management.
- Explain M-Commerce in details.
- List and describe problem of traditional file environment.

Q.5 Attempt any Two. 12

- Explain in detail Contemporary Software Platform Trends.
- Explain E-commerce business Model.
- What are the principles technologies and standards for wireless networking & Internet access?

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which type of infrastructure service stores and manages corporate data and provides capabilities for analyzing the data?
 - a) Networking
 - b) Telecommunication
 - c) Data Management
 - d) VOIP
- 2) Business intelligence (BI) is a broad category of application programs which includes _____.
 - a) Decision Support
 - b) Data mining
 - c) OLAP
 - d) All of the mentioned
- 3) _____ is the practice and precautions taken to protect valuable information from unauthorized access, recording, disclosure or destruction.
 - a) Network Security
 - b) Database Security
 - c) Information Security
 - d) Physical Security
- 4) ERP supports _____ currency Value.
 - a) Multiple
 - b) Single
 - c) Two
 - d) Five
- 5) Which dimension of e-commerce enables commerce beyond the boundaries of the country?
 - a) Richness
 - b) Interactivity
 - c) Global reach
 - d) Ubiquity
- 6) Which of the following is not a current application of m-commerce?
 - a) Phone Zagat
 - b) Red Laser
 - c) JoJo Contactless Payment Service
 - d) Zynga Farmer Exchange
- 7) During a DoS attack, the regular traffic on the target _____ will be either dawdling down or entirely interrupted.
 - a) Network
 - b) System
 - c) Website
 - d) Router

- 8) A TPS is commonly known as, _____.
- a) Trained Processing System
 - b) Transaction Processing System
 - c) Trainee presentable System
 - d) None of the above
- 9) The _____ can help you choose a product.
- a) office automation system
 - b) management information system
 - c) transaction processing system
 - d) decision support system
- 10) Information systems that are developed in response to corporate business initiative are _____.
- a) Marketing Information System
 - b) Management Information System
 - c) Strategic Information System
 - d) None of these
- 11) A Strategic Management Information System offers _____.
- a) Business intelligence
 - b) Organization flow
 - c) Process enhancement
 - d) Process flow
- 12) Which of the following is an ethical way for organizations to handle a MIS?
- a) Hire the best private security to protect the information.
 - b) Place a sign in the office that all hackers will be prosecuted.
 - c) Place the MIS behind a firewall and protect it from hackers.
 - d) Place a big sign in front that says they have a protected MIS system.
- 13) _____ is the first step in system development life cycle.
- a) Planning
 - b) Designing
 - c) Analysis
 - d) Implementation
- 14) The information of MIS comes from the boot _____ source.
- a) Internal
 - b) External
 - c) Superficial
 - d) Internal and external

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. 16

- What is Management Information Systems? Explain its characteristics.
- Explain System for Collaboration & Social business.
- Explain the concept of Strategic Information System.
- What are major problem areas in information System?
- How MIS supports to the management in Organization?

Q.3 Attempt any Two. 12

- Explain in detail FIVE Moral dimensions of the Information Age.
- Explain in detail Tools and technologies for collaboration and social business.
- What are different application of MIS in Various functional areas?

Section – II

Q.4 Attempt any Four. 16

- What is IT infrastructure & explain its components?
- Explain in detail Firewall.
- Explain tools of Security Management.
- Explain M-Commerce in details.
- List and describe problem of traditional file environment.

Q.5 Attempt any Two. 12

- Explain in detail Contemporary Software Platform Trends.
- Explain E-commerce business Model.
- What are the principles technologies and standards for wireless networking & Internet access?

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) ERP supports _____ currency Value.
 - a) Multiple
 - b) Single
 - c) Two
 - d) Five

- 2) Which dimension of e-commerce enables commerce beyond the boundaries of the country?
 - a) Richness
 - b) Interactivity
 - c) Global reach
 - d) Ubiquity

- 3) Which of the following is not a current application of m-commerce?
 - a) Phone Zagat
 - b) Red Laser
 - c) JoJo Contactless Payment Service
 - d) Zynga Farmer Exchange

- 4) During a DoS attack, the regular traffic on the target _____ will be either dawdling down or entirely interrupted.
 - a) Network
 - b) System
 - c) Website
 - d) Router

- 5) A TPS is commonly known as, _____.
 - a) Trained Processing System
 - b) Transaction Processing System
 - c) Trainee presentable System
 - d) None of the above

- 6) The _____ can help you choose a product.
 - a) office automation system
 - b) management information system
 - c) transaction processing system
 - d) decision support system

- 7) Information systems that are developed in response to corporate business initiative are _____.
 - a) Marketing Information System
 - b) Management Information System
 - c) Strategic Information System
 - d) None of these

- 8) A Strategic Management Information System offers _____.
- a) Business intelligence
 - b) Organization flow
 - c) Process enhancement
 - d) Process flow
- 9) Which of the following is an ethical way for organizations to handle a MIS?
- a) Hire the best private security to protect the information.
 - b) Place a sign in the office that all hackers will be prosecuted.
 - c) Place the MIS behind a firewall and protect it from hackers.
 - d) Place a big sign in front that says they have a protected MIS system.
- 10) _____ is the first step in system development life cycle.
- a) Planning
 - b) Designing
 - c) Analysis
 - d) Implementation
- 11) The information of MIS comes from the boot _____ source.
- a) Internal
 - b) External
 - c) Superficial
 - d) Internal and external
- 12) Which type of infrastructure service stores and manages corporate data and provides capabilities for analyzing the data?
- a) Networking
 - b) Telecommunication
 - c) Data Management
 - d) VOIP
- 13) Business intelligence (BI) is a broad category of application programs which includes _____.
- a) Decision Support
 - b) Data mining
 - c) OLAP
 - d) All of the mentioned
- 14) _____ is the practice and precautions taken to protect valuable information from unauthorized access, recording, disclosure or destruction.
- a) Network Security
 - b) Database Security
 - c) Information Security
 - d) Physical Security

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. 16

- What is Management Information Systems? Explain its characteristics.
- Explain System for Collaboration & Social business.
- Explain the concept of Strategic Information System.
- What are major problem areas in information System?
- How MIS supports to the management in Organization?

Q.3 Attempt any Two. 12

- Explain in detail FIVE Moral dimensions of the Information Age.
- Explain in detail Tools and technologies for collaboration and social business.
- What are different application of MIS in Various functional areas?

Section – II

Q.4 Attempt any Four. 16

- What is IT infrastructure & explain its components?
- Explain in detail Firewall.
- Explain tools of Security Management.
- Explain M-Commerce in details.
- List and describe problem of traditional file environment.

Q.5 Attempt any Two. 12

- Explain in detail Contemporary Software Platform Trends.
- Explain E-commerce business Model.
- What are the principles technologies and standards for wireless networking & Internet access?

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is the first step in system development life cycle.
 - a) Planning
 - b) Designing
 - c) Analysis
 - d) Implementation
- 2) The information of MIS comes from the boot _____ source.
 - a) Internal
 - b) External
 - c) Superficial
 - d) Internal and external
- 3) Which type of infrastructure service stores and manages corporate data and provides capabilities for analyzing the data?
 - a) Networking
 - b) Telecommunication
 - c) Data Management
 - d) VOIP
- 4) Business intelligence (BI) is a broad category of application programs which includes _____.
 - a) Decision Support
 - b) Data mining
 - c) OLAP
 - d) All of the mentioned
- 5) _____ is the practice and precautions taken to protect valuable information from unauthorized access, recording, disclosure or destruction.
 - a) Network Security
 - b) Database Security
 - c) Information Security
 - d) Physical Security
- 6) ERP supports _____ currency Value.
 - a) Multiple
 - b) Single
 - c) Two
 - d) Five
- 7) Which dimension of e-commerce enables commerce beyond the boundaries of the country?
 - a) Richness
 - b) Interactivity
 - c) Global reach
 - d) Ubiquity
- 8) Which of the following is not a current application of m-commerce?
 - a) Phone Zagat
 - b) Red Laser
 - c) JoJo Contactless Payment Service
 - d) Zynga Farmer Exchange

- 9) During a DoS attack, the regular traffic on the target _____ will be either dawdling down or entirely interrupted.
- a) Network
 - b) System
 - c) Website
 - d) Router
- 10) A TPS is commonly known as, _____.
- a) Trained Processing System
 - b) Transaction Processing System
 - c) Trainee presentable System
 - d) None of the above
- 11) The _____ can help you choose a product.
- a) office automation system
 - b) management information system
 - c) transaction processing system
 - d) decision support system
- 12) Information systems that are developed in response to corporate business initiative are _____.
- a) Marketing Information System
 - b) Management Information System
 - c) Strategic Information System
 - d) None of these
- 13) A Strategic Management Information System offers _____.
- a) Business intelligence
 - b) Organization flow
 - c) Process enhancement
 - d) Process flow
- 14) Which of the following is an ethical way for organizations to handle a MIS?
- a) Hire the best private security to protect the information.
 - b) Place a sign in the office that all hackers will be prosecuted.
 - c) Place the MIS behind a firewall and protect it from hackers.
 - d) Place a big sign in front that says they have a protected MIS system.

Seat No.	
-------------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (BTN03709)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. **16**

- a) What is Management Information Systems? Explain its characteristics.
- b) Explain System for Collaboration & Social business.
- c) Explain the concept of Strategic Information System.
- d) What are major problem areas in information System?
- e) How MIS supports to the management in Organization?

Q.3 Attempt any Two. **12**

- a) Explain in detail FIVE Moral dimensions of the Information Age.
- b) Explain in detail Tools and technologies for collaboration and social business.
- c) What are different application of MIS in Various functional areas?

Section – II

Q.4 Attempt any Four. **16**

- a) What is IT infrastructure & explain its components?
- b) Explain in detail Firewall.
- c) Explain tools of Security Management.
- d) Explain M-Commerce in details.
- e) List and describe problem of traditional file environment.

Q.5 Attempt any Two. **12**

- a) Explain in detail Contemporary Software Platform Trends.
- b) Explain E-commerce business Model.
- c) What are the principles technologies and standards for wireless networking & Internet access?

- 8) HDFS stores data in a distributed manner, the data can be processed in parallel on a ____ of nodes.
- a) Cluster
 - b) Data Node
 - c) Master Node
 - d) None of the mentioned above
- 9) Apache Cassandra is a massively scalable open source _____ database.
- a) SQL
 - b) NoSQL
 - c) NewSQL
 - d) All
- 10) The data model available within MongoDB allows us to represent _____.
- a) Hierarchical relationships
 - b) Able to handle complex structures
 - c) Both a and b
 - d) None of the mentioned above
- 11) A record in MongoDB is a _____.
- a) Document
 - b) Table
 - c) Application
 - d) None of the mentioned above
- 12) In order to interact with HDFS, a command line interface named _____ is provided.
- a) HDFS Shell
 - b) DFS Shell
 - c) K Shell
 - d) FS Shell
- 13) The MapReduce framework is responsible for processing one or more pieces of data and producing the output results as _____.
- a) Maptask
 - b) Task execution
 - c) Mapper
 - d) All of the mentioned above
- 14) NoSQL is not a _____.
- a) Relational database
 - b) Network database
 - c) Communication set
 - d) None of the mentioned above

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- What are different challenges with Big data?
 - Write a short note on Big data stack.
 - What are different ways/issues to deal unstructured data?
 - Write short note on Data Science. Give different responsibilities of a Data Scientist.
 - Explain YARN architecture in detail.
- Q.3 Attempt any two of the following questions. 12**
- What is Digital Data? Explain different types of Digital data.
 - What is Hadoop and explain its components in detail.
 - Short note on NoSQL and NewSQL database and give its difference with RDBMS.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- Write MongoDB query for an objective given below.
 Create a collection “food” and insert 5 documents into the food collection by “_id” and “fruits” array.
 Check these documents are present in food collection.
 Find that document from food collection where “grapes” is present in 2nd index position of the fruit array.
 - Explain different features of Cassandra in detail.
 - Explain Hive User defined Function with example.
 - Give different key features of Pig.
 - Explain Counter and Alter command in Cassandra.
- Q.5 Attempt any two of the following questions. 12**
- Explain different CRUD operations in MongoDB with examples.
 - Write HQL (HIVE QUERY LANGUAGE) queries along with its syntax for the following.
 - Create a table named student having fields.
 {Rollno, name, year, department}
 - Insert the data of three students from text file using LOAD statement.
 - Add three partitions to the table and rename them to SY, TY, and Final year.
 - Drop a partition Final year from the table.
 - Give word count example using Pig.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) HDFS stores data in a distributed manner, the data can be processed in parallel on a _____ of nodes.
 - a) Cluster
 - b) Data Node
 - c) Master Node
 - d) None of the mentioned above
- 2) Apache Cassandra is a massively scalable open source _____ database.
 - a) SQL
 - b) NoSQL
 - c) NewSQL
 - d) All
- 3) The data model available within MongoDB allows us to represent _____.
 - a) Hierarchical relationships
 - b) Able to handle complex structures
 - c) Both a and b
 - d) None of the mentioned above
- 4) A record in MongoDB is a _____.
 - a) Document
 - b) Table
 - c) Application
 - d) None of the mentioned above
- 5) In order to interact with HDFS, a command line interface named _____ is provided.
 - a) HDFS Shell
 - b) DFS Shell
 - c) K Shell
 - d) FS Shell
- 6) The MapReduce framework is responsible for processing one or more pieces of data and producing the output results as _____.
 - a) Maptask
 - b) Task execution
 - c) Mapper
 - d) All of the mentioned above
- 7) NoSQL is not a _____.
 - a) Relational database
 - b) Network database
 - c) Communication set
 - d) None of the mentioned above
- 8) Data that does not conform to a data model or data schema is known as _____.
 - a) Structured data
 - b) Unstructured data
 - c) Semi-structured data
 - d) All

- 9) _____ involves the simultaneous execution of multiple sub-tasks that collectively comprise a larger task.
- a) Parallel data processing
 - b) Single channel processing
 - c) Multi data processing
 - d) None of the mentioned above
- 10) Amongst which of the following is/are the cloud deployment models?
- a) Public Cloud
 - b) Private Cloud
 - c) Hybrid Cloud
 - d) All of the mentioned
- 11) MongoDB support cross platform and is written in _____ language.
- a) Python
 - b) C++
 - c) R
 - d) Java
- 12) _____ is the supporting physical infrastructure is fundamental to the operation and scalability of big data architecture.
- a) Redundant physical infrastructure
 - b) Integrated System
 - c) Integrated Database
 - d) All of the mentioned above
- 13) Amongst which of the following is / are correct?
- a) Hive is a relational database that supports SQL queries.
 - b) Pig is a relational database that supports SQL queries.
 - c) Both a and b
 - d) None of the mentioned above
- 14) Apache Hive is a data _____ infrastructure that is built on top of the Hadoop platform.
- a) Warehouse
 - b) Map
 - c) Reduce
 - d) None of the mentioned above

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- What are different challenges with Big data?
 - Write a short note on Big data stack.
 - What are different ways/issues to deal unstructured data?
 - Write short note on Data Science. Give different responsibilities of a Data Scientist.
 - Explain YARN architecture in detail.
- Q.3 Attempt any two of the following questions. 12**
- What is Digital Data? Explain different types of Digital data.
 - What is Hadoop and explain its components in detail.
 - Short note on NoSQL and NewSQL database and give its difference with RDBMS.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- Write MongoDB query for an objective given below.
 Create a collection “food” and insert 5 documents into the food collection by “_id” and “fruits” array.
 Check these documents are present in food collection.
 Find that document from food collection where “grapes” is present in 2nd index position of the fruit array.
 - Explain different features of Cassandra in detail.
 - Explain Hive User defined Function with example.
 - Give different key features of Pig.
 - Explain Counter and Alter command in Cassandra.
- Q.5 Attempt any two of the following questions. 12**
- Explain different CRUD operations in MongoDB with examples.
 - Write HQL (HIVE QUERY LANGUAGE) queries along with its syntax for the following.
 - Create a table named student having fields.
 {Rollno, name, year, department}
 - Insert the data of three students from text file using LOAD statement.
 - Add three partitions to the table and rename them to SY, TY, and Final year.
 - Drop a partition Final year from the table.
 - Give word count example using Pig.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A record in MongoDB is a _____.
 - a) Document
 - b) Table
 - c) Application
 - d) None of the mentioned above
- 2) In order to interact with HDFS, a command line interface named _____ is provided.
 - a) HDFS Shell
 - b) DFS Shell
 - c) K Shell
 - d) FS Shell
- 3) The MapReduce framework is responsible for processing one or more pieces of data and producing the output results as _____.
 - a) Maptask
 - b) Task execution
 - c) Mapper
 - d) All of the mentioned above
- 4) NoSQL is not a _____.
 - a) Relational database
 - b) Network database
 - c) Communication set
 - d) None of the mentioned above
- 5) Data that does not conform to a data model or data schema is known as _____.
 - a) Structured data
 - b) Unstructured data
 - c) Semi-structured data
 - d) All
- 6) _____ involves the simultaneous execution of multiple sub-tasks that collectively comprise a larger task.
 - a) Parallel data processing
 - b) Single channel processing
 - c) Multi data processing
 - d) None of the mentioned above
- 7) Amongst which of the following is/are the cloud deployment models?
 - a) Public Cloud
 - b) Private Cloud
 - c) Hybrid Cloud
 - d) All of the mentioned
- 8) MongoDB support cross platform and is written in _____ language.
 - a) Python
 - b) C++
 - c) R
 - d) Java

- 9) _____ is the supporting physical infrastructure is fundamental to the operation and scalability of big data architecture.
- a) Redundant physical infrastructure
 - b) Integrated System
 - c) Integrated Database
 - d) All of the mentioned above
- 10) Amongst which of the following is / are correct?
- a) Hive is a relational database that supports SQL queries.
 - b) Pig is a relational database that supports SQL queries.
 - c) Both a and b
 - d) None of the mentioned above
- 11) Apache Hive is a data _____ infrastructure that is built on top of the Hadoop platform.
- a) Warehouse
 - b) Map
 - c) Reduce
 - d) None of the mentioned above
- 12) HDFS stores data in a distributed manner, the data can be processed in parallel on a _____ of nodes.
- a) Cluster
 - b) Data Node
 - c) Master Node
 - d) None of the mentioned above
- 13) Apache Cassandra is a massively scalable open source _____ database.
- a) SQL
 - b) NoSQL
 - c) NewSQL
 - d) All
- 14) The data model available within MongoDB allows us to represent _____.
- a) Hierarchical relationships
 - b) Able to handle complex structures
 - c) Both a and b
 - d) None of the mentioned above

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) What are different challenges with Big data?
 - b) Write a short note on Big data stack.
 - c) What are different ways/issues to deal unstructured data?
 - d) Write short note on Data Science. Give different responsibilities of a Data Scientist.
 - e) Explain YARN architecture in detail.
- Q.3 Attempt any two of the following questions. 12**
- a) What is Digital Data? Explain different types of Digital data.
 - b) What is Hadoop and explain its components in detail.
 - c) Short note on NoSQL and NewSQL database and give its difference with RDBMS.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- a) Write MongoDB query for an objective given below.
 Create a collection “food” and insert 5 documents into the food collection by “_id” and “fruits” array.
 Check these documents are present in food collection.
 Find that document from food collection where “grapes” is present in 2nd index position of the fruit array.
 - b) Explain different features of Cassandra in detail.
 - c) Explain Hive User defined Function with example.
 - d) Give different key features of Pig.
 - e) Explain Counter and Alter command in Cassandra.
- Q.5 Attempt any two of the following questions. 12**
- a) Explain different CRUD operations in MongoDB with examples.
 - b) Write HQL (HIVE QUERY LANGUAGE) queries along with its syntax for the following.
 - a) Create a table named student having fields.
 {Rollno, name, year, department}
 - b) Insert the data of three students from text file using LOAD statement.
 - c) Add three partitions to the table and rename them to SY, TY, and Final year.
 - d) Drop a partition Final year from the table.
 - c) Give word count example using Pig.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Amongst which of the following is / are correct?
 - a) Hive is a relational database that supports SQL queries.
 - b) Pig is a relational database that supports SQL queries.
 - c) Both a and b
 - d) None of the mentioned above
- 2) Apache Hive is a data _____ infrastructure that is built on top of the Hadoop platform.
 - a) Warehouse
 - b) Map
 - c) Reduce
 - d) None of the mentioned above
- 3) HDFS stores data in a distributed manner, the data can be processed in parallel on a _____ of nodes.
 - a) Cluster
 - b) Data Node
 - c) Master Node
 - d) None of the mentioned above
- 4) Apache Cassandra is a massively scalable open source _____ database.
 - a) SQL
 - b) NoSQL
 - c) NewSQL
 - d) All
- 5) The data model available within MongoDB allows us to represent _____.
 - a) Hierarchical relationships
 - b) Able to handle complex structures
 - c) Both a and b
 - d) None of the mentioned above
- 6) A record in MongoDB is a _____.
 - a) Document
 - b) Table
 - c) Application
 - d) None of the mentioned above
- 7) In order to interact with HDFS, a command line interface named _____ is provided.
 - a) HDFS Shell
 - b) DFS Shell
 - c) K Shell
 - d) FS Shell

Seat No.	
-------------	--

Set

S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE & ENGINEERING
Big Data Analytics (BTN03711)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) What are different challenges with Big data?
 - b) Write a short note on Big data stack.
 - c) What are different ways/issues to deal unstructured data?
 - d) Write short note on Data Science. Give different responsibilities of a Data Scientist.
 - e) Explain YARN architecture in detail.
- Q.3 Attempt any two of the following questions. 12**
- a) What is Digital Data? Explain different types of Digital data.
 - b) What is Hadoop and explain its components in detail.
 - c) Short note on NoSQL and NewSQL database and give its difference with RDBMS.

Section – II

- Q.4 Attempt any four of the following questions. 16**
- a) Write MongoDB query for an objective given below.
 Create a collection “food” and insert 5 documents into the food collection by “_id” and “fruits” array.
 Check these documents are present in food collection.
 Find that document from food collection where “grapes” is present in 2nd index position of the fruit array.
 - b) Explain different features of Cassandra in detail.
 - c) Explain Hive User defined Function with example.
 - d) Give different key features of Pig.
 - e) Explain Counter and Alter command in Cassandra.
- Q.5 Attempt any two of the following questions. 12**
- a) Explain different CRUD operations in MongoDB with examples.
 - b) Write HQL (HIVE QUERY LANGUAGE) queries along with its syntax for the following.
 - a) Create a table named student having fields.
 {Rollno, name, year, department}
 - b) Insert the data of three students from text file using LOAD statement.
 - c) Add three partitions to the table and rename them to SY, TY, and Final year.
 - d) Drop a partition Final year from the table.
 - c) Give word count example using Pig.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What does LSTM stand for?
 - a) Long Short Term Memory
 - b) Least Squares Term Memory
 - c) Least Square Time Mean
 - d) Long Short Threshold Memory
- 2) Which of the following functions can be used as an activation function in the output layer if we wish to predict the probabilities of n classes (p_1, p_2, \dots, p_n) such that sum of p over all n equals to 1?

a) Softmax	b) ReLu
c) Sigmoid	d) Tanh
- 3) Dimensionality reduction does _____.

a) reduce computational time	b) may lead to some data loss
c) remove redundant feature	d) all
- 4) K-fold cross-validation is _____.

a) linear in K	b) quadratic in K
c) cubic in K	d) exponential in K
- 5) What is the best Neural Network Model for Temporal Data?

a) Recurrent Neural Network	b) Convolution Neural Networks
c) Temporal Neural Networks	d) Multi-Layer perceptions
- 6) De-noising and Contractive are examples of _____.

a) Auto encoders	b) Convolution Neural Networks
c) Recurrent Neural Networks	d) None
- 7) The reuse of a pre-trained model on a new problem is known as _____.

a) Learning rate	b) Bias
c) Variance	d) Transfer learning

Seat No.	
-------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Write differences between LOOCV and K fold cross validation.
- b) Assume we have two variables, P and Q and we wish to find their relation. A line of equation tell us that $P = mQ + c$. Suppose the samples of the variables P and Q are available to us. Is it possible to apply linear regression to this data to estimate the values of m and c ? Justify your answers.
- c) Assume a simple deep learning model with 3 neurons and inputs= 1,2,3 The weights to the input neurons are 4,5 and 8 respectively. Assume the activation function is a linear constant value of 2. calculate the output?
- d) Enlist the different platform for deep learning.
- e) Write differences between underfitting and overfitting.

Q.3 Attempt any one **06**

- a) What is drawback of RNN? How t is overcome by LSTM. Explain it in details.
- b) Discuss different types of hyper parameter.

Q.4 Attempt the following **06**

Explain different types of activation functions.

Section – II

Q.5 Attempt any four **16**

- a) Explain Siamese Networks.
- b) Explain Metric Learning.
- c) Explain denoising auto encoder.
- d) Write short note on Bidirectional LSTM.
- e) Explain the use of auto encoder in dimensionality reduction & classification.

Q.6 Attempt any one. **06**

- a) Define Transfer Learning. Explain in detail.
- b) Explain SGD optimizer for CNNs.

Q.7 Attempt the following **06**

Write a short note on RNN Topologies.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) CNN is mostly used when there is an?
 - a) structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 2) After training a neural network, you observe a large gap between the training accuracy (100%) and the test accuracy (42%). Which of the following methods is commonly used to reduce this gap?
 - a) Generative adversarial network
 - b) Sigmoid function
 - c) RMSProp Optimizer
 - d) Dropout
- 3) Which of the following statement is true regarding dropout?
 - 1) Dropout gives a way to approximate by combining many different architectures
 - 2) Dropout demands high learning rates
 - 3) Dropout can help preventing overfitting
 - a) Both 1 and 2
 - b) Both 1 and 3
 - c) Both 2 and 3
 - d) All 1, 2 and 3
- 4) IN Neural Network The input from Input layer is then feed into the _____.
 - a) Input layer
 - b) Output layer
 - c) Hidden layer
 - d) None of these
- 5) _____ computes the output volume by computing dot product between all filters and image patch.
 - a) Input Layer
 - b) Convolution Layer
 - c) Activation Function Layer
 - d) Pooling Layer
- 6) _____ Types of transfer learning.
 - a) Inductive transfer learning
 - b) Transductive transfer learning
 - c) Both A and B
 - d) none of the above
- 7) The rate at which cost changes with respect to weight or bias is called _____.
 - a) Derivative
 - b) Gradient
 - c) Rate of change
 - d) Loss

- 8) What does LSTM stand for?
a) Long Short Term Memory
b) Least Squares Term Memory
c) Least Square Time Mean
d) Long Short Threshold Memory
- 9) Which of the following functions can be used as an activation function in the output layer if we wish to predict the probabilities of n classes (p_1, p_2, \dots, p_n) such that sum of p over all n equals to 1?
a) Softmax
b) ReLu
c) Sigmoid
d) Tanh
- 10) Dimensionality reduction does _____.
a) reduce computational time
b) may lead to some data loss
c) remove redundant feature
d) all
- 11) K-fold cross-validation is _____.
a) linear in K
b) quadratic in K
c) cubic in K
d) exponential in K
- 12) What is the best Neural Network Model for Temporal Data?
a) Recurrent Neural Network
b) Convolution Neural Networks
c) Temporal Neural Networks
d) Multi-Layer perceptions
- 13) De-noising and Contractive are examples of _____.
a) Auto encoders
b) Convolution Neural Networks
c) Recurrent Neural Networks
d) None
- 14) The reuse of a pre-trained model on a new problem is known as _____.
a) Learning rate
b) Bias
c) Variance
d) Transfer learning

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Write differences between LOOCV and K fold cross validation.
- b) Assume we have two variables, P and Q and we wish to find their relation. A line of equation tell us that $P = mQ + c$. Suppose the samples of the variables P and Q are available to us. Is it possible to apply linear regression to this data to estimate the values of m and c ? Justify your answers.
- c) Assume a simple deep learning model with 3 neurons and inputs= 1,2,3 The weights to the input neurons are 4,5 and 8 respectively. Assume the activation function is a linear constant value of 2. calculate the output?
- d) Enlist the different platform for deep learning.
- e) Write differences between underfitting and overfitting.

Q.3 Attempt any one **06**

- a) What is drawback of RNN? How t is overcome by LSTM. Explain it in details.
- b) Discuss different types of hyper parameter.

Q.4 Attempt the following **06**

Explain different types of activation functions.

Section – II

Q.5 Attempt any four **16**

- a) Explain Siamese Networks.
- b) Explain Metric Learning.
- c) Explain denoising auto encoder.
- d) Write short note on Bidirectional LSTM.
- e) Explain the use of auto encoder in dimensionality reduction & classification.

Q.6 Attempt any one. **06**

- a) Define Transfer Learning. Explain in detail.
- b) Explain SGD optimizer for CNNs.

Q.7 Attempt the following **06**

Write a short note on RNN Topologies.

- 9) What is the best Neural Network Model for Temporal Data?
- a) Recurrent Neural Network
 - b) Convolution Neural Networks
 - c) Temporal Neural Networks
 - d) Multi-Layer perceptions
- 10) De-noising and Contractive are examples of _____.
- a) Auto encoders
 - b) Convolution Neural Networks
 - c) Recurrent Neural Networks
 - d) None
- 11) The reuse of a pre-trained model on a new problem is known as _____.
- a) Learning rate
 - b) Bias
 - c) Variance
 - d) Transfer learning
- 12) CNN is mostly used when there is an?
- a) structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 13) After training a neural network, you observe a large gap between the training accuracy (100%) and the test accuracy (42%). Which of the following methods is commonly used to reduce this gap?
- a) Generative adversarial network
 - b) Sigmoid function
 - c) RMSProp Optimizer
 - d) Dropout
- 14) Which of the following statement is true regarding dropout?
- 1) Dropout gives a way to approximate by combining many different architectures
 - 2) Dropout demands high learning rates
 - 3) Dropout can help preventing overfitting
- a) Both 1 and 2
 - b) Both 1 and 3
 - c) Both 2 and 3
 - d) All 1, 2 and 3

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Write differences between LOOCV and K fold cross validation.
- b) Assume we have two variables, P and Q and we wish to find their relation. A line of equation tell us that $P = mQ + c$. Suppose the samples of the variables P and Q are available to us. Is it possible to apply linear regression to this data to estimate the values of m and c ? Justify your answers.
- c) Assume a simple deep learning model with 3 neurons and inputs= 1,2,3 The weights to the input neurons are 4,5 and 8 respectively. Assume the activation function is a linear constant value of 2. calculate the output?
- d) Enlist the different platform for deep learning.
- e) Write differences between underfitting and overfitting.

Q.3 Attempt any one **06**

- a) What is drawback of RNN? How t is overcome by LSTM. Explain it in details.
- b) Discuss different types of hyper parameter.

Q.4 Attempt the following **06**

Explain different types of activation functions.

Section – II

Q.5 Attempt any four **16**

- a) Explain Siamese Networks.
- b) Explain Metric Learning.
- c) Explain denoising auto encoder.
- d) Write short note on Bidirectional LSTM.
- e) Explain the use of auto encoder in dimensionality reduction & classification.

Q.6 Attempt any one. **06**

- a) Define Transfer Learning. Explain in detail.
- b) Explain SGD optimizer for CNNs.

Q.7 Attempt the following **06**

Write a short note on RNN Topologies.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) De-noising and Contractive are examples of _____.
 - a) Auto encoders
 - b) Convolution Neural Networks
 - c) Recurrent Neural Networks
 - d) None
- 2) The reuse of a pre-trained model on a new problem is known as _____.
 - a) Learning rate
 - b) Bias
 - c) Variance
 - d) Transfer learning
- 3) CNN is mostly used when there is an?
 - a) structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 4) After training a neural network, you observe a large gap between the training accuracy (100%) and the test accuracy (42%). Which of the following methods is commonly used to reduce this gap?
 - a) Generative adversarial network
 - b) Sigmoid function
 - c) RMSProp Optimizer
 - d) Dropout
- 5) Which of the following statement is true regarding dropout?
 - 1) Dropout gives a way to approximate by combining many different architectures
 - 2) Dropout demands high learning rates
 - 3) Dropout can help preventing overfitting
 - a) Both 1 and 2
 - b) Both 1 and 3
 - c) Both 2 and 3
 - d) All 1, 2 and 3
- 6) IN Neural Network The input from Input layer is then feed into the _____.
 - a) Input layer
 - b) Output layer
 - c) Hidden layer
 - d) None of these
- 7) _____ computes the output volume by computing dot product between all filters and image patch.
 - a) Input Layer
 - b) Convolution Layer
 - c) Activation Function Layer
 - d) Pooling Layer

- 8) _____ Types of transfer learning.
- a) Inductive transfer learning
 - b) Transductive transfer learning
 - c) Both A and B
 - d) none of the above
- 9) The rate at which cost changes with respect to weight or bias is called _____.
- a) Derivative
 - b) Gradient
 - c) Rate of change
 - d) Loss
- 10) What does LSTM stand for?
- a) Long Short Term Memory
 - b) Least Squares Term Memory
 - c) Least Square Time Mean
 - d) Long Short Threshold Memory
- 11) Which of the following functions can be used as an activation function in the output layer if we wish to predict the probabilities of n classes (p_1, p_2, \dots, p_n) such that sum of p over all n equals to 1?
- a) Softmax
 - b) ReLu
 - c) Sigmoid
 - d) Tanh
- 12) Dimensionality reduction does _____.
- a) reduce computational time
 - b) may lead to some data loss
 - c) remove redundant feature
 - d) all
- 13) K-fold cross-validation is _____.
- a) linear in K
 - b) quadratic in K
 - c) cubic in K
 - d) exponential in K
- 14) What is the best Neural Network Model for Temporal Data?
- a) Recurrent Neural Network
 - b) Convolution Neural Networks
 - c) Temporal Neural Networks
 - d) Multi-Layer perceptions

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (BTN03713)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Write differences between LOOCV and K fold cross validation.
- b) Assume we have two variables, P and Q and we wish to find their relation. A line of equation tell us that $P = mQ + c$. Suppose the samples of the variables P and Q are available to us. Is it possible to apply linear regression to this data to estimate the values of m and c ? Justify your answers.
- c) Assume a simple deep learning model with 3 neurons and inputs= 1,2,3 The weights to the input neurons are 4,5 and 8 respectively. Assume the activation function is a linear constant value of 2. calculate the output?
- d) Enlist the different platform for deep learning.
- e) Write differences between underfitting and overfitting.

Q.3 Attempt any one **06**

- a) What is drawback of RNN? How t is overcome by LSTM. Explain it in details.
- b) Discuss different types of hyper parameter.

Q.4 Attempt the following **06**

Explain different types of activation functions.

Section – II

Q.5 Attempt any four **16**

- a) Explain Siamese Networks.
- b) Explain Metric Learning.
- c) Explain denoising auto encoder.
- d) Write short note on Bidirectional LSTM.
- e) Explain the use of auto encoder in dimensionality reduction & classification.

Q.6 Attempt any one. **06**

- a) Define Transfer Learning. Explain in detail.
- b) Explain SGD optimizer for CNNs.

Q.7 Attempt the following **06**

Write a short note on RNN Topologies.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ refers to the ability to turn your data useful for business.
 - a) Velocity
 - b) Variety
 - c) Value
 - d) None of the above
- 2) Which of the following is a measure of how well a machine learning model is able to make predictions on new data?
 - a) Accuracy
 - b) Precision
 - c) Recall
 - d) All of the above
- 3) In descriptive statistics, data from the entire population or a sample is summarized with _____.
 - a) Decimal descriptor
 - b) Numerical descriptor
 - c) Integer descriptor
 - d) All of the above
- 4) The Process of describing the data that is huge and complex to store and process is known as _____.
 - a) Analytics mining
 - b) Big Data
 - c) Data cleaning
 - d) None of the above
- 5) Amongst which of the following is / are the types of predictive analytics techniques?
 - a) Predictive models
 - b) Descriptive models
 - c) Decision models
 - d) All of the mentioned above
- 6) Machine learning in predictive analytics uses to enable computers to learn without being explicitly programmed by building algorithms that can receive _____ and use statistics to predict an output.
 - a) Input data
 - b) Output data
 - c) Process data
 - d) All of the mentioned above
- 7) Which of the following is not a major data analysis approaches?
 - a) Business Intelligence
 - b) Predictive Intelligence
 - c) Data Mining
 - d) Text Analytics

- 8) Data Analysis is a process of?
a) Inspecting
b) Data transforming
c) Data Cleaning
d) All of the above
- 9) Predictive analytics uses statistics and _____ to determine future performance.
a) Algorithmic Techniques
b) Modeling Techniques
c) System development and design Techniques
d) None of the mentioned above
- 10) Organizations are turning to predictive analytics to increase their bottom line and competitive advantage.
a) True
b) False
- 11) Which of the following is a technique used to extract meaningful insights from data sets that are too large or complex to be processed by traditional data processing tools?
a) Business Intelligence
b) Machine Learning
c) Artificial Intelligence
d) Data Science
- 12) What could be the possible reason(s) for producing two different dendrograms using an agglomerative clustering algorithm for the same dataset?
a) Proximity function used
b) data points used
c) Variables used
d) All of Above
- 13) Which of the following clustering requires merging approach?
a) Partitional
b) Hierarchical
c) Naive Bayes
d) none of the mentioned
- 14) Which attribute selection measure is used in the ID3 algorithm?
a) Gini Index
b) Entropy
c) Information Gain
d) Chi-square

Seat No.	
-------------	--

Set

P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four.** **16**
- a) What is Predictive Analytics? Explain Advantages and strategies of predictive Analytics.
 - b) Explain Target marketing with example.
 - c) Explain complexities in searching data.
 - d) Explain Big Data.
 - e) Write a short note on: Surveying Marketplace.

- Q.3 Attempt any two.** **12**
- a) Explain recommender system.
 - b) Differentiating Business Intelligence from Big-Data Analytics.
 - c) How to start predictive analytics project.

Section – II

- Q.4 Attempt any four.** **16**
- a) Explain categorizing model.
 - b) How to Find Association in data items.
 - c) Explain algorithm for generating decision trees.
 - d) Explain principal component analysis.
 - e) Explain Ensemble methods.

- Q.5 Attempt any two.** **12**
- a) Explain K-means clustering algorithm.
 - b) Explain Decision tree with example.
 - c) Explain Healthcare analytics case studies: Google flu trends, Cancer survivability predictors.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Data Analysis is a process of?

a) Inspecting	b) Data transforming
c) Data Cleaning	d) All of the above
- 2) Predictive analytics uses statistics and _____ to determine future performance.

a) Algorithmic Techniques	b) Modeling Techniques
c) System development and design Techniques	d) None of the mentioned above
- 3) Organizations are turning to predictive analytics to increase their bottom line and competitive advantage.

a) True	b) False
---------	----------
- 4) Which of the following is a technique used to extract meaningful insights from data sets that are too large or complex to be processed by traditional data processing tools?

a) Business Intelligence	b) Machine Learning
c) Artificial Intelligence	d) Data Science
- 5) What could be the possible reason(s) for producing two different dendrograms using an agglomerative clustering algorithm for the same dataset?

a) Proximity function used	b) data points used
c) Variables used	d) All of Above
- 6) Which of the following clustering requires merging approach?

a) Partitional	b) Hierarchical
c) Naive Bayes	d) none of the mentioned
- 7) Which attribute selection measure is used in the ID3 algorithm?

a) Gini Index	b) Entropy
c) Information Gain	d) Chi-square
- 8) _____ refers to the ability to turn your data useful for business.

a) Velocity	b) Variety
c) Value	d) None of the above

- 9) Which of the following is a measure of how well a machine learning model is able to make predictions on new data?
- a) Accuracy
 - b) Precision
 - c) Recall
 - d) All of the above
- 10) In descriptive statistics, data from the entire population or a sample is summarized with _____.
- a) Decimal descriptor
 - b) Numerical descriptor
 - c) Integer descriptor
 - d) All of the above
- 11) The Process of describing the data that is huge and complex to store and process is known as _____.
- a) Analytics mining
 - b) Big Data
 - c) Data cleaning
 - d) None of the above
- 12) Amongst which of the following is / are the types of predictive analytics techniques?
- a) Predictive models
 - b) Descriptive models
 - c) Decision models
 - d) All of the mentioned above
- 13) Machine learning in predictive analytics uses to enable computers to learn without being explicitly programmed by building algorithms that can receive _____ and use statistics to predict an output.
- a) Input data
 - b) Output data
 - c) Process data
 - d) All of the mentioned above
- 14) Which of the following is not a major data analysis approaches?
- a) Business Intelligence
 - b) Predictive Intelligence
 - c) Data Mining
 - d) Text Analytics

Seat No.	
-------------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four. 16**
- a) What is Predictive Analytics? Explain Advantages and strategies of predictive Analytics.
 - b) Explain Target marketing with example.
 - c) Explain complexities in searching data.
 - d) Explain Big Data.
 - e) Write a short note on: Surveying Marketplace.

- Q.3 Attempt any two. 12**
- a) Explain recommender system.
 - b) Differentiating Business Intelligence from Big-Data Analytics.
 - c) How to start predictive analytics project.

Section – II

- Q.4 Attempt any four. 16**
- a) Explain categorizing model.
 - b) How to Find Association in data items.
 - c) Explain algorithm for generating decision trees.
 - d) Explain principal component analysis.
 - e) Explain Ensemble methods.

- Q.5 Attempt any two. 12**
- a) Explain K-means clustering algorithm.
 - b) Explain Decision tree with example.
 - c) Explain Healthcare analytics case studies: Google flu trends, Cancer survivability predictors.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is a technique used to extract meaningful insights from data sets that are too large or complex to be processed by traditional data processing tools?
 - a) Business Intelligence
 - b) Machine Learning
 - c) Artificial Intelligence
 - d) Data Science
- 2) What could be the possible reason(s) for producing two different dendrograms using an agglomerative clustering algorithm for the same dataset?
 - a) Proximity function used
 - b) data points used
 - c) Variables used
 - d) All of Above
- 3) Which of the following clustering requires merging approach?
 - a) Partitional
 - b) Hierarchical
 - c) Naive Bayes
 - d) none of the mentioned
- 4) Which attribute selection measure is used in the ID3 algorithm?
 - a) Gini Index
 - b) Entropy
 - c) Information Gain
 - d) Chi-square
- 5) _____ refers to the ability to turn your data useful for business.
 - a) Velocity
 - b) Variety
 - c) Value
 - d) None of the above
- 6) Which of the following is a measure of how well a machine learning model is able to make predictions on new data?
 - a) Accuracy
 - b) Precision
 - c) Recall
 - d) All of the above
- 7) In descriptive statistics, data from the entire population or a sample is summarized with _____.
 - a) Decimal descriptor
 - b) Numerical descriptor
 - c) Integer descriptor
 - d) All of the above
- 8) The Process of describing the data that is huge and complex to store and process is known as _____.
 - a) Analytics mining
 - b) Big Data
 - c) Data cleaning
 - d) None of the above

- 9) Amongst which of the following is / are the types of predictive analytics techniques?
- a) Predictive models
 - b) Descriptive models
 - c) Decision models
 - d) All of the mentioned above
- 10) Machine learning in predictive analytics uses to enable computers to learn without being explicitly programmed by building algorithms that can receive _____ and use statistics to predict an output.
- a) Input data
 - b) Output data
 - c) Process data
 - d) All of the mentioned above
- 11) Which of the following is not a major data analysis approaches?
- a) Business Intelligence
 - b) Predictive Intelligence
 - c) Data Mining
 - d) Text Analytics
- 12) Data Analysis is a process of?
- a) Inspecting
 - b) Data transforming
 - c) Data Cleaning
 - d) All of the above
- 13) Predictive analytics uses statistics and _____ to determine future performance.
- a) Algorithmic Techniques
 - b) Modeling Techniques
 - c) System development and design Techniques
 - d) None of the mentioned above
- 14) Organizations are turning to predictive analytics to increase their bottom line and competitive advantage.
- a) True
 - b) False

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four. 16**
- a) What is Predictive Analytics? Explain Advantages and strategies of predictive Analytics.
 - b) Explain Target marketing with example.
 - c) Explain complexities in searching data.
 - d) Explain Big Data.
 - e) Write a short note on: Surveying Marketplace.
- Q.3 Attempt any two. 12**
- a) Explain recommender system.
 - b) Differentiating Business Intelligence from Big-Data Analytics.
 - c) How to start predictive analytics project.

Section – II

- Q.4 Attempt any four. 16**
- a) Explain categorizing model.
 - b) How to Find Association in data items.
 - c) Explain algorithm for generating decision trees.
 - d) Explain principal component analysis.
 - e) Explain Ensemble methods.
- Q.5 Attempt any two. 12**
- a) Explain K-means clustering algorithm.
 - b) Explain Decision tree with example.
 - c) Explain Healthcare analytics case studies: Google flu trends, Cancer survivability predictors.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Machine learning in predictive analytics uses to enable computers to learn without being explicitly programmed by building algorithms that can receive _____ and use statistics to predict an output.
 - a) Input data
 - b) Output data
 - c) Process data
 - d) All of the mentioned above
- 2) Which of the following is not a major data analysis approaches?
 - a) Business Intelligence
 - b) Predictive Intelligence
 - c) Data Mining
 - d) Text Analytics
- 3) Data Analysis is a process of?
 - a) Inspecting
 - b) Data transforming
 - c) Data Cleaning
 - d) All of the above
- 4) Predictive analytics uses statistics and _____ to determine future performance.
 - a) Algorithmic Techniques
 - b) Modeling Techniques
 - c) System development and design Techniques
 - d) None of the mentioned above
- 5) Organizations are turning to predictive analytics to increase their bottom line and competitive advantage.
 - a) True
 - b) False
- 6) Which of the following is a technique used to extract meaningful insights from data sets that are too large or complex to be processed by traditional data processing tools?
 - a) Business Intelligence
 - b) Machine Learning
 - c) Artificial Intelligence
 - d) Data Science
- 7) What could be the possible reason(s) for producing two different dendrograms using an agglomerative clustering algorithm for the same dataset?
 - a) Proximity function used
 - b) data points used
 - c) Variables used
 - d) All of Above
- 8) Which of the following clustering requires merging approach?
 - a) Partitional
 - b) Hierarchical
 - c) Naive Bayes
 - d) none of the mentioned

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Predictive Analytics (BTN03715)

Day & Date: Sunday 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four. 16**
- a) What is Predictive Analytics? Explain Advantages and strategies of predictive Analytics.
 - b) Explain Target marketing with example.
 - c) Explain complexities in searching data.
 - d) Explain Big Data.
 - e) Write a short note on: Surveying Marketplace.
- Q.3 Attempt any two. 12**
- a) Explain recommender system.
 - b) Differentiating Business Intelligence from Big-Data Analytics.
 - c) How to start predictive analytics project.

Section – II

- Q.4 Attempt any four. 16**
- a) Explain categorizing model.
 - b) How to Find Association in data items.
 - c) Explain algorithm for generating decision trees.
 - d) Explain principal component analysis.
 - e) Explain Ensemble methods.
- Q.5 Attempt any two. 12**
- a) Explain K-means clustering algorithm.
 - b) Explain Decision tree with example.
 - c) Explain Healthcare analytics case studies: Google flu trends, Cancer survivability predictors.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Inline styles are written within the _____ attribute.
 - a) style
 - b) css
 - c) stylesheet
 - d) Both a and b
- 2) Which of the following is the correct use of the strcmp() function in PHP?
 - a) The strcmp() function is used to compare the strings excluding case
 - b) The strcmp() function is used to compare the uppercase strings
 - c) The strcmp() function is used to compare the lowercase strings
 - d) The strcmp() function is used to compare the strings including case
- 3) Which of the following is correct about JavaScript?
 - a) JavaScript is an Object-Based language
 - b) JavaScript is Assembly-language
 - c) JavaScript is an Object-Oriented language
 - d) JavaScript is a High-level language
- 4) Which of the following variables takes precedence over the others if the names are the same?
 - a) Global variable
 - b) The local element
 - c) The two of the above
 - d) None of the above
- 5) What does PSD stand for?
 - a) Photoshop Shopping document
 - b) Photoshop Document
 - c) Photoshop Digital
 - d) Photoshop Shopping Digital
- 6) Which of the following command is used to install create-react-app?
 - a) npm install -g create-react-app
 - b) npm install create-react-app
 - c) npm install -f create-react-app
 - d) install -g create-react-app

- 7) Which of the following keyword is used to create a class inheritance in React?
- | | |
|------------|-------------|
| a) Create | b) Inherits |
| c) Extends | d) This |
- 8) What does ES6 stand for?
- | | |
|---------------------|------------------|
| a) ECMAScript 6 | b) ECMA 6 |
| c) ECMAJavaScript 6 | d) EJavaScript 6 |
- 9) Which of the following command is used to start a REPL session?
- | | |
|-----------------|--------------------|
| a) \$ node | b) \$ node start |
| c) \$ node repl | d) \$ node console |
- 10) Which of the following is used for concatenation in PHP?
- | | |
|-------------|-----------------|
| a) + (plus) | b) * (Asterisk) |
| c) . (dot) | d) append() |

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from no 2 to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes.** **10**
a) What are the Data types supported by JavaScript?
b) What are the different types of PHP variables?
- Q.3** What is Node.js? How does Node.js work? **10**
- Q.4** Explain RESTful Architectural Principles. **10**
- Q.5** Explain Node.js web application architecture. **10**
- Q.6** List some features of JavaScript. How Do You Create an Array in JavaScript? **10**
- Q.7 Write short notes.** **10**
a) Differences between GET and POST methods
b) What is React? What are the advantages of using React?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Which of the following command is used to install create-react-app?
 - a) npm install -g create-react-app
 - b) npm install create-react-app
 - c) npm install -f create-react-app
 - d) install -g create-react-app
- 2) Which of the following keyword is used to create a class inheritance in React?
 - a) Create
 - b) Inherits
 - c) Extends
 - d) This
- 3) What does ES6 stand for?
 - a) ECMAScript 6
 - b) ECMA 6
 - c) ECMAJavaScript 6
 - d) EJavaScript 6
- 4) Which of the following command is used to start a REPL session?
 - a) \$ node
 - b) \$ node start
 - c) \$ node repl
 - d) \$ node console
- 5) Which of the following is used for concatenation in PHP?
 - a) + (plus)
 - b) * (Asterisk)
 - c) . (dot)
 - d) append()
- 6) Inline styles are written within the _____ attribute.
 - a) style
 - b) css
 - c) stylesheet
 - d) Both a and b
- 7) Which of the following is the correct use of the strcmp() function in PHP?
 - a) The strcmp() function is used to compare the strings excluding case
 - b) The strcmp() function is used to compare the uppercase strings
 - c) The strcmp() function is used to compare the lowercase strings
 - d) The strcmp() function is used to compare the strings including case
- 8) Which of the following is correct about JavaScript?
 - a) JavaScript is an Object-Based language
 - b) JavaScript is Assembly-language
 - c) JavaScript is an Object-Oriented language
 - d) JavaScript is a High-level language

- 9) Which of the following variables takes precedence over the others if the names are the same?
- | | |
|-------------------------|----------------------|
| a) Global variable | b) The local element |
| c) The two of the above | d) None of the above |
- 10) What does PSD stand for?
- a) Photoshop Shopping document
 - b) Photoshop Document
 - c) Photoshop Digital
 - d) Photoshop Shopping Digital

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from no 2 to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes.** **10**
a) What are the Data types supported by JavaScript?
b) What are the different types of PHP variables?
- Q.3** What is Node.js? How does Node.js work? **10**
- Q.4** Explain RESTful Architectural Principles. **10**
- Q.5** Explain Node.js web application architecture. **10**
- Q.6** List some features of JavaScript. How Do You Create an Array in JavaScript? **10**
- Q.7 Write short notes.** **10**
a) Differences between GET and POST methods
b) What is React? What are the advantages of using React?

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Which of the following command is used to start a REPL session?
 - a) \$ node
 - b) \$ node start
 - c) \$ node repl
 - d) \$ node console
- 2) Which of the following is used for concatenation in PHP?
 - a) + (plus)
 - b) * (Asterisk)
 - c) . (dot)
 - d) append()
- 3) Inline styles are written within the _____ attribute.
 - a) style
 - b) css
 - c) stylesheet
 - d) Both a and b
- 4) Which of the following is the correct use of the strcmp() function in PHP?
 - a) The strcmp() function is used to compare the strings excluding case
 - b) The strcmp() function is used to compare the uppercase strings
 - c) The strcmp() function is used to compare the lowercase strings
 - d) The strcmp() function is used to compare the strings including case
- 5) Which of the following is correct about JavaScript?
 - a) JavaScript is an Object-Based language
 - b) JavaScript is Assembly-language
 - c) JavaScript is an Object-Oriented language
 - d) JavaScript is a High-level language
- 6) Which of the following variables takes precedence over the others if the names are the same?
 - a) Global variable
 - b) The local element
 - c) The two of the above
 - d) None of the above
- 7) What does PSD stand for?
 - a) Photoshop Shopping document
 - b) Photoshop Document
 - c) Photoshop Digital
 - d) Photoshop Shopping Digital

- 8) Which of the following command is used to install create-react-app?
- a) npm install -g create-react-app
 - b) npm install create-react-app
 - c) npm install -f create-react-app
 - d) install -g create-react-app
- 9) Which of the following keyword is used to create a class inheritance in React?
- a) Create
 - b) Inherits
 - c) Extends
 - d) This
- 10) What does ES6 stand for?
- a) ECMAScript 6
 - b) ECMA 6
 - c) ECMAJavaScript 6
 - d) EJavaScript 6

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from no 2 to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes.** **10**
a) What are the Data types supported by JavaScript?
b) What are the different types of PHP variables?
- Q.3** What is Node.js? How does Node.js work? **10**
- Q.4** Explain RESTful Architectural Principles. **10**
- Q.5** Explain Node.js web application architecture. **10**
- Q.6** List some features of JavaScript. How Do You Create an Array in JavaScript? **10**
- Q.7 Write short notes.** **10**
a) Differences between GET and POST methods
b) What is React? What are the advantages of using React?

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Which of the following is correct about JavaScript?
 - a) JavaScript is an Object-Based language
 - b) JavaScript is Assembly-language
 - c) JavaScript is an Object-Oriented language
 - d) JavaScript is a High-level language
- 2) Which of the following variables takes precedence over the others if the names are the same?

a) Global variable	b) The local element
c) The two of the above	d) None of the above
- 3) What does PSD stand for?
 - a) Photoshop Shopping document
 - b) Photoshop Document
 - c) Photoshop Digital
 - d) Photoshop Shopping Digital
- 4) Which of the following command is used to install create-react-app?
 - a) npm install -g create-react-app
 - b) npm install create-react-app
 - c) npm install -f create-react-app
 - d) install -g create-react-app
- 5) Which of the following keyword is used to create a class inheritance in React?

a) Create	b) Inherits
c) Extends	d) This
- 6) What does ES6 stand for?

a) ECMAScript 6	b) ECMA 6
c) ECMAJavaScript 6	d) EJavaScript 6
- 7) Which of the following command is used to start a REPL session?

a) \$ node	b) \$ node start
c) \$ node repl	d) \$ node console

- 8) Which of the following is used for concatenation in PHP?
- a) + (plus)
 - b) * (Asterisk)
 - c) . (dot)
 - d) append()
- 9) Inline styles are written within the _____ attribute.
- a) style
 - b) css
 - c) stylesheet
 - d) Both a and b
- 10) Which of the following is the correct use of the strcmp() function in PHP?
- a) The strcmp() function is used to compare the strings excluding case
 - b) The strcmp() function is used to compare the uppercase strings
 - c) The strcmp() function is used to compare the lowercase strings
 - d) The strcmp() function is used to compare the strings including case

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
UI/UX Technology (BTN03719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) Attempt any 4 questions from no 2 to 7.
2) Figures to the right indicate full marks.

- Q.2 Write short notes.** **10**
a) What are the Data types supported by JavaScript?
b) What are the different types of PHP variables?
- Q.3** What is Node.js? How does Node.js work? **10**
- Q.4** Explain RESTful Architectural Principles. **10**
- Q.5** Explain Node.js web application architecture. **10**
- Q.6** List some features of JavaScript. How Do You Create an Array in JavaScript? **10**
- Q.7 Write short notes.** **10**
a) Differences between GET and POST methods
b) What is React? What are the advantages of using React?

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Licenses and Practices (BTN03720)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Q.1 Attempt any five of the following.

30

- a) Write a note on BSD licensing.
- b) What are five key source code licensing attributes in Microsoft Shared Source Initiative? Explain them briefly.
- c) State and explain basic principles of copyright law.
- d) Define the following terms with respect to Open Source and Free Software Licensing.
 - i) Attribution
 - ii) Share Alike
- e) Briefly Explain the Academic Free License.
- f) What are the negative effects of Open Source and Free Software Licensing?

Q.2 Attempt any two of the following.

20

- a) State and explain issues with Copyrights and Patents with indicative examples.
- b) State the benefits of Open Source Software Licensing. Explain how Community Enforcement of Open Source and Free Software Licenses works with an example.
- c) Write a detail note on Multiple and Cross Licensing.

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Licenses and Practices (BTN03720)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Q.1 Attempt any five of the following. 30

- a) Write a note on BSD licensing.
- b) What are five key source code licensing attributes in Microsoft Shared Source Initiative? Explain them briefly.
- c) State and explain basic principles of copyright law.
- d) Define the following terms with respect to Open Source and Free Software Licensing.
 - i) Attribution
 - ii) Share Alike
- e) Briefly Explain the Academic Free License.
- f) What are the negative effects of Open Source and Free Software Licensing?

Q.2 Attempt any two of the following. 20

- a) State and explain issues with Copyrights and Patents with indicative examples.
- b) State the benefits of Open Source Software Licensing. Explain how Community Enforcement of Open Source and Free Software Licenses works with an example.
- c) Write a detail note on Multiple and Cross Licensing.

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Licenses and Practices (BTN03720)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Q.1 Attempt any five of the following. 30

- a) Write a note on BSD licensing.
- b) What are five key source code licensing attributes in Microsoft Shared Source Initiative? Explain them briefly.
- c) State and explain basic principles of copyright law.
- d) Define the following terms with respect to Open Source and Free Software Licensing.
 - i) Attribution
 - ii) Share Alike
- e) Briefly Explain the Academic Free License.
- f) What are the negative effects of Open Source and Free Software Licensing?

Q.2 Attempt any two of the following. 20

- a) State and explain issues with Copyrights and Patents with indicative examples.
- b) State the benefits of Open Source Software Licensing. Explain how Community Enforcement of Open Source and Free Software Licenses works with an example.
- c) Write a detail note on Multiple and Cross Licensing.

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Licenses and Practices (BTN03720)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Q.1 Attempt any five of the following.

30

- a) Write a note on BSD licensing.
- b) What are five key source code licensing attributes in Microsoft Shared Source Initiative? Explain them briefly.
- c) State and explain basic principles of copyright law.
- d) Define the following terms with respect to Open Source and Free Software Licensing.
 - i) Attribution
 - ii) Share Alike
- e) Briefly Explain the Academic Free License.
- f) What are the negative effects of Open Source and Free Software Licensing?

Q.2 Attempt any two of the following.

20

- a) State and explain issues with Copyrights and Patents with indicative examples.
- b) State the benefits of Open Source Software Licensing. Explain how Community Enforcement of Open Source and Free Software Licenses works with an example.
- c) Write a detail note on Multiple and Cross Licensing.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which activity deals with the process of deciding which process should be assigned to which processor?

a) Process Allocation	b) Process migration
c) Threads allocation	d) None of these
- 2) Which of the following refers to the degree of tolerance against errors and component failures in a system?

a) Portability	b) Reliability
c) Maintainability	d) Scalability
- 3) _____ model consists of several workstations interconnected by a communication network.

a) Minicomputer	b) Processor pool
c) Workstation	d) Hybrid
- 4) Following is one of the feature of message passing systems?

a) Maintainability	b) Durability
c) Economy	d) Correctness
- 5) In _____ representation of encoding and decoding the message data only contain program objects.

a) untagged	b) system
c) tagged	d) All
- 6) The _____ handles transmission of messages across the network between client and server.

a) Server Stub	b) RPC Runtime
c) Client stub	d) Server
- 7) _____ requires each node to read the other node's clock value.

a) Process synchronization	b) Event synchronization
c) Clock synchronization	d) All

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any three of the following. 12**
- a) Describe mini computer model used in distributed systems.
 - b) What are the different protocols used in distributed systems?
 - c) How encoding and decoding of message data in message passing system?
 - d) What is thread? Describe any one thread model.
- Q.3 Attempt any one of the following. 08**
- a) What are different issues in designing distributed system?
 - b) What are the desirable features for good process migration?
- Q.4 Explain marshalling arguments and results in RPC. 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Explain Suzuki-Kasami algorithm used in mutual exclusion.
 - b) What are the different issues in deadlock detection and resolution?
 - c) Describe Lamport's algorithm used in distributed mutual exclusion.
 - d) Explain the architecture of distributed file systems.
- Q.6 Attempt any one of the following. 08**
- a) Explain deadlock handling strategies in distributed system in detail.
 - b) What are different design issues of distributed file system?
- Q.7 Describe architecture and motivation of distributed shared memory. 08**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Who defined a new relation called happened -before relation in partial ordering of events?
 - a) Lamport
 - b) Lambort
 - c) Lambfort
 - d) Lamport
- 2) In distributed file system, _____ is mapping between logical and physical objects.
 - a) naming
 - b) client interfacing
 - c) migration
 - d) heterogeneity
- 3) In _____ only one process at a time is allowed into its critical section, among all processes that have critical sections for the same resource.
 - a) Synchronization
 - b) mutual Exclusion
 - c) Deadlock
 - d) starvation
- 4) _____ is employed in DFS to reduce delays in the accessing of data.
 - a) Naming
 - b) Optimizing
 - c) Caching
 - d) None of these
- 5) DSM means _____.
 - a) Data Shared memory
 - b) Distinct shared memory
 - c) Distributed shared mutants
 - d) Distributed shared memory
- 6) In the central server algorithm, a central server maintains all the _____.
 - a) shared data
 - b) shared services
 - c) complex data
 - d) isolated data
- 7) The _____ model provides the virtual address space that is shared among all nodes in a distributed system.
 - a) shared service
 - b) shared memory
 - c) shared data
 - d) shared resource
- 8) Which activity deals with the process of deciding which process should be assigned to which processor?
 - a) Process Allocation
 - b) Process migration
 - c) Threads allocation
 - d) None of these

- 9) Which of the following refers to the degree of tolerance against errors and component failures in a system?
- a) Portability
 - b) Reliability
 - c) Maintainability
 - d) Scalability
- 10) _____ model consists of several workstations interconnected by a communication network.
- a) Minicomputer
 - b) Processor pool
 - c) Workstation
 - d) Hybrid
- 11) Following is one of the feature of message passing systems?
- a) Maintainability
 - b) Durability
 - c) Economy
 - d) Correctness
- 12) In _____ representation of encoding and decoding the message data only contain program objects.
- a) untagged
 - b) system
 - c) tagged
 - d) All
- 13) The _____ handles transmission of messages across the network between client and server.
- a) Server Stub
 - b) RPC Runtime
 - c) Client stub
 - d) Server
- 14) _____ requires each node to read the other node's clock value.
- a) Process synchronization
 - b) Event synchronization
 - c) Clock synchronization
 - d) All

Seat No.	
----------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any three of the following. 12**
- Describe mini computer model used in distributed systems.
 - What are the different protocols used in distributed systems?
 - How encoding and decoding of message data in message passing system?
 - What is thread? Describe any one thread model.
- Q.3 Attempt any one of the following. 08**
- What are different issues in designing distributed system?
 - What are the desirable features for good process migration?
- Q.4 Explain marshalling arguments and results in RPC. 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- Explain Suzuki-Kasami algorithm used in mutual exclusion.
 - What are the different issues in deadlock detection and resolution?
 - Describe Lamport's algorithm used in distributed mutual exclusion.
 - Explain the architecture of distributed file systems.
- Q.6 Attempt any one of the following. 08**
- Explain deadlock handling strategies in distributed system in detail.
 - What are different design issues of distributed file system?
- Q.7 Describe architecture and motivation of distributed shared memory. 08**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is employed in DFS to reduce delays in the accessing of data.
 - a) Naming
 - b) Optimizing
 - c) Caching
 - d) None of these
- 2) DSM means _____.
 - a) Data Shared memory
 - b) Distinct shared memory
 - c) Distributed shared mutants
 - d) Distributed shared memory
- 3) In the central server algorithm, a central server maintains all the _____.
 - a) shared data
 - b) shared services
 - c) complex data
 - d) isolated data
- 4) The _____ model provides the virtual address space that is shared among all nodes in a distributed system.
 - a) shared service
 - b) shared memory
 - c) shared data
 - d) shared resource
- 5) Which activity deals with the process of deciding which process should be assigned to which processor?
 - a) Process Allocation
 - b) Process migration
 - c) Threads allocation
 - d) None of these
- 6) Which of the following refers to the degree of tolerance against errors and component failures in a system?
 - a) Portability
 - b) Reliability
 - c) Maintainability
 - d) Scalability
- 7) _____ model consists of several workstations interconnected by a communication network.
 - a) Minicomputer
 - b) Processor pool
 - c) Workstation
 - d) Hybrid
- 8) Following is one of the feature of message passing systems?
 - a) Maintainability
 - b) Durability
 - c) Economy
 - d) Correctness

- 9) In _____ representation of encoding and decoding the message data only contain program objects.
- a) untagged
 - b) system
 - c) tagged
 - d) All
- 10) The _____ handles transmission of messages across the network between client and server.
- a) Server Stub
 - b) RPC Runtime
 - c) Client stub
 - d) Server
- 11) _____ requires each node to read the other node's clock value.
- a) Process synchronization
 - b) Event synchronization
 - c) Clock synchronization
 - d) All
- 12) Who defined a new relation called happened -before relation in partial ordering of events?
- a) Lamport
 - b) Lamport
 - c) Lamport
 - d) Lamport
- 13) In distributed file system, _____ is mapping between logical and physical objects.
- a) naming
 - b) client interfacing
 - c) migration
 - d) heterogeneity
- 14) In _____ only one process at a time is allowed into its critical section, among all processes that have critical sections for the same resource.
- a) Synchronization
 - b) mutual Exclusion
 - c) Deadlock
 - d) starvation

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any three of the following. 12**
- a) Describe mini computer model used in distributed systems.
 - b) What are the different protocols used in distributed systems?
 - c) How encoding and decoding of message data in message passing system?
 - d) What is thread? Describe any one thread model.
- Q.3 Attempt any one of the following. 08**
- a) What are different issues in designing distributed system?
 - b) What are the desirable features for good process migration?
- Q.4 Explain marshalling arguments and results in RPC. 08**

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Explain Suzuki-Kasami algorithm used in mutual exclusion.
 - b) What are the different issues in deadlock detection and resolution?
 - c) Describe Lamport's algorithm used in distributed mutual exclusion.
 - d) Explain the architecture of distributed file systems.
- Q.6 Attempt any one of the following. 08**
- a) Explain deadlock handling strategies in distributed system in detail.
 - b) What are different design issues of distributed file system?
- Q.7 Describe architecture and motivation of distributed shared memory. 08**

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The _____ handles transmission of messages across the network between client and server.
 - a) Server Stub
 - b) RPC Runtime
 - c) Client stub
 - d) Server
- 2) _____ requires each node to read the other node's clock value.
 - a) Process synchronization
 - b) Event synchronization
 - c) Clock synchronization
 - d) All
- 3) Who defined a new relation called happened -before relation in partial ordering of events?
 - a) Lamport
 - b) Lambort
 - c) Lambfort
 - d) Lamport
- 4) In distributed file system, _____ is mapping between logical and physical objects.
 - a) naming
 - b) client interfacing
 - c) migration
 - d) heterogeneity
- 5) In _____ only one process at a time is allowed into its critical section, among all processes that have critical sections for the same resource.
 - a) Synchronization
 - b) mutual Exclusion
 - c) Deadlock
 - d) starvation
- 6) _____ is employed in DFS to reduce delays in the accessing of data.
 - a) Naming
 - b) Optimizing
 - c) Caching
 - d) None of these
- 7) DSM means _____.
 - a) Data Shared memory
 - b) Distinct shared memory
 - c) Distributed shared mutants
 - d) Distributed shared memory
- 8) In the central server algorithm, a central server maintains all the _____.
 - a) shared data
 - b) shared services
 - c) complex data
 - d) isolated data

- 9) The _____ model provides the virtual address space that is shared among all nodes in a distributed system.
- a) shared service
 - b) shared memory
 - c) shared data
 - d) shared resource
- 10) Which activity deals with the process of deciding which process should be assigned to which processor?
- a) Process Allocation
 - b) Process migration
 - c) Threads allocation
 - d) None of these
- 11) Which of the following refers to the degree of tolerance against errors and component failures in a system?
- a) Portability
 - b) Reliability
 - c) Maintainability
 - d) Scalability
- 12) _____ model consists of several workstations interconnected by a communication network.
- a) Minicomputer
 - b) Processor pool
 - c) Workstation
 - d) Hybrid
- 13) Following is one of the feature of message passing systems?
- a) Maintainability
 - b) Durability
 - c) Economy
 - d) Correctness
- 14) In _____ representation of encoding and decoding the message data only contain program objects.
- a) untagged
 - b) system
 - c) tagged
 - d) All

Seat No.	
----------	--

Set

S

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Distributed Systems (197043701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any three of the following. 12**
 a) Describe mini computer model used in distributed systems.
 b) What are the different protocols used in distributed systems?
 c) How encoding and decoding of message data in message passing system?
 d) What is thread? Describe any one thread model.
- Q.3 Attempt any one of the following. 08**
 a) What are different issues in designing distributed system?
 b) What are the desirable features for good process migration?
- Q.4 Explain marshalling arguments and results in RPC. 08**

Section – II

- Q.5 Attempt any three of the following. 12**
 a) Explain Suzuki-Kasami algorithm used in mutual exclusion.
 b) What are the different issues in deadlock detection and resolution?
 c) Describe Lamport's algorithm used in distributed mutual exclusion.
 d) Explain the architecture of distributed file systems.
- Q.6 Attempt any one of the following. 08**
 a) Explain deadlock handling strategies in distributed system in detail.
 b) What are different design issues of distributed file system?
- Q.7 Describe architecture and motivation of distributed shared memory. 08**

- 8) _____ Algorithm is used to remove redundant data, outliers and other no useful data.
- a) Bayesian
 - b) Dimensionality reduction
 - c) Association
 - d) Clustering
- 9) _____ ways improve machine learning model.
- a) Error curve method
 - b) Testing multiple model
 - c) SDLC Model
 - d) none
- 10) The process goes on repetitively until there are no more chunks. Chunks can be small (depending on core memory), and the process is called _____.
- a) mini-batch learning
 - b) learning model
 - c) linear regression
 - d) none
- 11) _____ can lead to poor performance of machine learning model.
- a) Under fitting
 - b) Over fitting
 - c) Both a and b
 - d) none
- 12) _____ uses the branching structure to illustrate the result o decision.
- a) Bayesian
 - b) Decision Tree
 - c) Association
 - d) Clustering
- 13) _____ method is used to avoid over fitting.
- a) Bayesian
 - b) Regularization
 - c) Rule based machine learning
 - d) Dimensionality reduction
- 14) _____ is used to overcome the problem of snooping.
- a) Training
 - b) Testing
 - c) Validation
 - d) None

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any FOUR. 16**
- a) Write differences between machine learning and data mining.
 - b) Write short note on Searching for the best hyper parameters.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Explain the term choosing right error or Score Metric.
- Q.3 Attempt any ONE. 06**
- a) Exploring the world of Probabilities.
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following. 06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any FOUR. 16**
- a) Explain Leave one out cross validation.
 - b) Write differences between LOOC and K-fold cross validation.
 - c) Explain Learning curves using cross validation.
 - d) Explain the discovering the Incredible perceptron.
 - e) Explain Averaging model.
- Q.6 Attempt any ONE. 06**
- a) Explain Learning as Optimization.
 - b) Write a short note on following application of machine learning.
 - a) classifying images
 - b) scoring opinions and sentiments
 - c) Recommending product and movies
- Q.7 Attempt the following. 06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Make suitable assumption (if necessary and state them clearly)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ Algorithm is used to remove redundant data, outliers and other no useful data.
 - a) Bayesian
 - b) Dimensionality reduction
 - c) Association
 - d) Clustering
- 2) _____ ways improve machine learning model.
 - a) Error curve method
 - b) Testing multiple model
 - c) SDLC Model
 - d) none
- 3) The process goes on repetitively until there are no more chunks. Chunks can be small (depending on core memory), and the process is called _____.
 - a) mini-batch learning
 - b) learning model
 - c) linear regression
 - d) none
- 4) _____ can lead to poor performance of machine learning model.
 - a) Under fitting
 - b) Over fitting
 - c) Both a and b
 - d) none
- 5) _____ uses the branching structure to illustrate the result o decision.
 - a) Bayesian
 - b) Decision Tree
 - c) Association
 - d) Clustering
- 6) _____ method is used to avoid over fitting.
 - a) Bayesian
 - b) Regularization
 - c) Rule based machine learning
 - d) Dimensionality reduction
- 7) _____ is used to overcome the problem of snooping.
 - a) Training
 - b) Testing
 - c) Validation
 - d) None
- 8) Quantitative features are perfect for machine learning because they define values as _____.
 - a) Number
 - b) Text
 - c) Images
 - d) All of the above

- 9) _____ is a form of AI that enables a system to learn from data rather than through explicit programming.
- a) Deep Learning
 - b) Collective intelligence
 - c) Machine Learning
 - d) None of this
- 10) _____ occurs when your algorithm has learned too much from your data, up to the point of mapping curve shapes and rules that do not exist.
- a) under fitting
 - b) over fitting
 - c) cost function
 - d) none
- 11) One of the more important uses of _____ in machine learning is to classify images for all sorts of reasons.
- a) under fitting
 - b) computer vision
 - c) cost function
 - d) none
- 12) _____ function performs the rendering and uses a grayscale color map.
- a) plt.show()
 - b) show()
 - c) imshow()
 - d) imread()
- 13) _____ Algorithm would make sense.
- a) Clustering
 - b) Bayesian
 - c) Association
 - d) none
- 14) _____ determines how well a machine learning algorithm performs in a supervised prediction or an unsupervised optimization problem.
- a) cost function
 - b) evaluation function
 - c) Both a and b
 - d) None

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any FOUR. 16**
- a) Write differences between machine learning and data mining.
 - b) Write short note on Searching for the best hyper parameters.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Explain the term choosing right error or Score Metric.
- Q.3 Attempt any ONE. 06**
- a) Exploring the world of Probabilities.
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following. 06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any FOUR. 16**
- a) Explain Leave one out cross validation.
 - b) Write differences between LOOC and K-fold cross validation.
 - c) Explain Learning curves using cross validation.
 - d) Explain the discovering the Incredible perceptron.
 - e) Explain Averaging model.
- Q.6 Attempt any ONE. 06**
- a) Explain Learning as Optimization.
 - b) Write a short note on following application of machine learning.
 - a) classifying images
 - b) scoring opinions and sentiments
 - c) Recommending product and movies
- Q.7 Attempt the following. 06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Make suitable assumption (if necessary and state them clearly)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ can lead to poor performance of machine learning model.
 - a) Under fitting
 - b) Over fitting
 - c) Both a and b
 - d) none
- 2) _____ uses the branching structure to illustrate the result o decision.
 - a) Bayesian
 - b) Decision Tree
 - c) Association
 - d) Clustering
- 3) _____ method is used to avoid over fitting.
 - a) Bayesian
 - b) Regularization
 - c) Rule based machine learning
 - d) Dimensionality reduction
- 4) _____ is used to overcome the problem of snooping.
 - a) Training
 - b) Testing
 - c) Validation
 - d) None
- 5) Quantitative features are perfect for machine learning because they define values as _____.
 - a) Number
 - b) Text
 - c) Images
 - d) All of the above
- 6) _____ is a form of AI that enables a system to learn from data rather than through explicit programming.
 - a) Deep Learning
 - b) Collective intelligence
 - c) Machine Learning
 - d) None of this
- 7) _____ occurs when your algorithm has learned too much from your data, up to the point of mapping curve shapes and rules that do not exist.
 - a) under fitting
 - b) over fitting
 - c) cost function
 - d) none
- 8) One of the more important uses of _____ in machine learning is to classify images for all sorts of reasons.
 - a) under fitting
 - b) computer vision
 - c) cost function
 - d) none

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any FOUR. 16**
- a) Write differences between machine learning and data mining.
 - b) Write short note on Searching for the best hyper parameters.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Explain the term choosing right error or Score Metric.
- Q.3 Attempt any ONE. 06**
- a) Exploring the world of Probabilities.
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following. 06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any FOUR. 16**
- a) Explain Leave one out cross validation.
 - b) Write differences between LOOC and K-fold cross validation.
 - c) Explain Learning curves using cross validation.
 - d) Explain the discovering the Incredible perceptron.
 - e) Explain Averaging model.
- Q.6 Attempt any ONE. 06**
- a) Explain Learning as Optimization.
 - b) Write a short note on following application of machine learning.
 - a) classifying images
 - b) scoring opinions and sentiments
 - c) Recommending product and movies
- Q.7 Attempt the following. 06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Make suitable assumption (if necessary and state them clearly)

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ Algorithm would make sense.
 - a) Clustering
 - b) Bayesian
 - c) Association
 - d) none
- 2) _____ determines how well a machine learning algorithm performs in a supervised prediction or an unsupervised optimization problem.
 - a) cost function
 - b) evaluation function
 - c) Both a and b
 - d) None
- 3) _____ Algorithm is used to remove redundant data, outliers and other no useful data.
 - a) Bayesian
 - b) Dimensionality reduction
 - c) Association
 - d) Clustering
- 4) _____ ways improve machine learning model.
 - a) Error curve method
 - b) Testing multiple model
 - c) SDLC Model
 - d) none
- 5) The process goes on repetitively until there are no more chunks. Chunks can be small (depending on core memory), and the process is called _____.
 - a) mini-batch learning
 - b) learning model
 - c) linear regression
 - d) none
- 6) _____ can lead to poor performance of machine learning model.
 - a) Under fitting
 - b) Over fitting
 - c) Both a and b
 - d) none
- 7) _____ uses the branching structure to illustrate the result o decision.
 - a) Bayesian
 - b) Decision Tree
 - c) Association
 - d) Clustering
- 8) _____ method is used to avoid over fitting.
 - a) Bayesian
 - b) Regularization
 - c) Rule based machine learning
 - d) Dimensionality reduction

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Machine Learning (197043702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any FOUR. 16**
- a) Write differences between machine learning and data mining.
 - b) Write short note on Searching for the best hyper parameters.
 - c) Write a short note on Data preparation.
 - d) Explain tying machine learning methods to outcome.
 - e) Explain the term choosing right error or Score Metric.
- Q.3 Attempt any ONE. 06**
- a) Exploring the world of Probabilities.
 - b) Write a short note on Machine Learning Cycle.
- Q.4 Attempt the following. 06**
- Explain Exploring cost function.

Section – II

- Q.5 Attempt any FOUR. 16**
- a) Explain Leave one out cross validation.
 - b) Write differences between LOOC and K-fold cross validation.
 - c) Explain Learning curves using cross validation.
 - d) Explain the discovering the Incredible perceptron.
 - e) Explain Averaging model.
- Q.6 Attempt any ONE. 06**
- a) Explain Learning as Optimization.
 - b) Write a short note on following application of machine learning.
 - a) classifying images
 - b) scoring opinions and sentiments
 - c) Recommending product and movies
- Q.7 Attempt the following. 06**
- Explain the following term:
- a) Training
 - b) Testing
 - c) Validating

Seat No.	
-------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)

Day & Date: Friday 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The architecture of distributed database system is greatly influenced by _____.
 - a) Networking
 - b) Parallelism
 - c) Distribution of Data
 - d) All of the above
- 2) In Transaction server _____.
 - a) Client machines ship transaction to server systems
 - b) Requests are made by clients to servers using SQL
 - c) Server ships the information to clients
 - d) All of the above
- 3) _____ protocol provides less overhead on READ operation.
 - a) Majority Protocol
 - b) Quorum Consensus Protocol
 - c) Primary Copy Protocol
 - d) Biased Protocol
- 4) Which of the following is not a characteristic of a data warehouse?
 - a) contains historical data
 - b) designed for decision support
 - c) stores data in normalized tables
 - d) promotes data redundancy
- 5) _____ fragmentation splits the relation by assigning each tuple of relation R into one or more fragments.
 - a) Horizontal
 - b) Vertical
 - c) Mixed
 - d) Data
- 6) A heterogeneous distributed database is _____.
 - a) The same DBMS is used at different location and data are not distributed across all nodes.
 - b) The same DBMS is used at different location and data are distributed across all nodes.
 - c) A different DBMS is used at different location and data are not distributed across all nodes.
 - d) A different DBMS is used at different location and data are distributed across all nodes

- 7) In Object Oriented Databases, Nesting can be done using function _____ to create a multiset of particular attribute.
- a) Aggregate
 - b) group by
 - c) order by
 - d) Collect
- 8) Data mining is best described as the process of _____.
- a) identifying patterns in data
 - b) deducing relationships in data
 - c) representing data
 - d) simulating trends in data
- 9) Which of the following is not a NoSQL database?
- a) SQL Server
 - b) MongoDB
 - c) Cassandra
 - d) None
- 10) A global locking system is required in _____.
- a) shared disk architecture
 - b) Shared Nothing architecture
 - c) Shared-memory Architecture
 - d) None of these
- 11) MongoDB has been adopted as _____ software by a number of major websites and service.
- a) frontend
 - b) backend
 - c) proprietary
 - d) All of the mentioned
- 12) Schema which has more than one fact table is called as _____.
- a) Star schema
 - b) Star-snowflake schema
 - c) Constellation
 - d) None of these
- 13) Point out the wrong statement:
- a) Hadoop's processing capabilities are huge and its real advantage lies in the ability to process terabytes & petabytes of data.
 - b) Hadoop uses a programming model called "MapReduce", all the programs should confirm to this model in order to work on Hadoop platform.
 - c) The programming model, MapReduce, used by Hadoop is difficult to write and test
 - d) All of the mentioned
- 14) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
- a) readers
 - b) readers-writer
 - c) writer
 - d) None of the mentioned

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)

Day & Date: Friday 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three.** **12**
- a) List and compare different partitioning techniques.
 - b) What are different issues in designing a Data Server?
 - c) How deadlock is handled in distributed database systems?
 - d) How ranking operation can be performed on database?
 - e) List and explain 4 methods of OLAP implementation.
- Q.3 Attempt any one.** **08**
- a) Define Data Warehouse and Data Mining? Explain KDD process in detail.
 - b) In Distributed Transaction which protocol is used to ensure Atomicity?
 Explain the protocol in detail.
- Q.4 Attempt the following.** **08**
- Explain Brewer's CAP Theorem in detail.

Section – II

- Q.5 Attempt any Three.** **12**
- a) Describe characteristics of MongoDB.
 - b) Explain Type inheritance with example.
 - c) Differentiate between object oriented DBMS and Object relational DBMS.
 - d) Explain external Sort merge in detail.
 - e) With the help of diagram, explain steps in query processing.
- Q.6 Attempt any one.** **08**
- a) Explain Hadoop Distributed File System (HDFS) Architecture with diagram.
 - b) List Characteristics of NoSql. Also define Key-value store and Document Database.
- Q.7 Attempt the following.** **08**
- In Object oriented database, structured type can have *methods*. With example, write declaration, body of method and also explain how this method can be invoked on instance of Type.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)**

Day & Date: Friday 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Data mining is best described as the process of _____.
 - a) identifying patterns in data
 - b) deducing relationships in data
 - c) representing data
 - d) simulating trends in data
- 2) Which of the following is not a NoSQL database?
 - a) SQL Server
 - b) MongoDB
 - c) Cassandra
 - d) None
- 3) A global locking system is required in _____.
 - a) shared disk architecture
 - b) Shared Nothing architecture
 - c) Shared-memory Architecture
 - d) None of these
- 4) MongoDB has been adopted as _____ software by a number of major websites and service.
 - a) frontend
 - b) backend
 - c) proprietary
 - d) All of the mentioned
- 5) Schema which has more than one fact table is called as _____.
 - a) Star schema
 - b) Star-snowflake schema
 - c) Constellation
 - d) None of these
- 6) Point out the wrong statement:
 - a) Hadoop's processing capabilities are huge and its real advantage lies in the ability to process terabytes & petabytes of data.
 - b) Hadoop uses a programming model called "MapReduce", all the programs should confirm to this model in order to work on Hadoop platform.
 - c) The programming model, MapReduce, used by Hadoop is difficult to write and test
 - d) All of the mentioned
- 7) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
 - a) readers
 - b) readers-writer
 - c) writer
 - d) None of the mentioned

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)

Day & Date: Friday 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
 a) List and compare different partitioning techniques.
 b) What are different issues in designing a Data Server?
 c) How deadlock is handled in distributed database systems?
 d) How ranking operation can be performed on database?
 e) List and explain 4 methods of OLAP implementation.
- Q.3 Attempt any one. 08**
 a) Define Data Warehouse and Data Mining? Explain KDD process in detail.
 b) In Distributed Transaction which protocol is used to ensure Atomicity?
 Explain the protocol in detail.
- Q.4 Attempt the following. 08**
 Explain Brewer's CAP Theorem in detail.

Section – II

- Q.5 Attempt any Three. 12**
 a) Describe characteristics of MongoDB.
 b) Explain Type inheritance with example.
 c) Differentiate between object oriented DBMS and Object relational DBMS.
 d) Explain external Sort merge in detail.
 e) With the help of diagram, explain steps in query processing.
- Q.6 Attempt any one. 08**
 a) Explain Hadoop Distributed File System (HDFS) Architecture with diagram.
 b) List Characteristics of NoSql. Also define Key-value store and Document Database.
- Q.7 Attempt the following. 08**
 In Object oriented database, structured type can have *methods*. With example, write declaration, body of method and also explain how this method can be invoked on instance of Type.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)

Day & Date: Friday 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) MongoDB has been adopted as _____ software by a number of major websites and service.
 - a) frontend
 - b) backend
 - c) proprietary
 - d) All of the mentioned
- 2) Schema which has more than one fact table is called as _____.
 - a) Star schema
 - b) Star-snowflake schema
 - c) Constellation
 - d) None of these
- 3) Point out the wrong statement:
 - a) Hadoop's processing capabilities are huge and its real advantage lies in the ability to process terabytes & petabytes of data.
 - b) Hadoop uses a programming model called "MapReduce", all the programs should confirm to this model in order to work on Hadoop platform.
 - c) The programming model, MapReduce, used by Hadoop is difficult to write and test
 - d) All of the mentioned
- 4) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
 - a) readers
 - b) readers-writer
 - c) writer
 - d) None of the mentioned
- 5) The architecture of distributed database system is greatly influenced by _____.
 - a) Networking
 - b) Parallelism
 - c) Distribution of Data
 - d) All of the above
- 6) In Transaction server _____.
 - a) Client machines ship transaction to server systems
 - b) Requests are made by clients to servers using SQL
 - c) Server ships the information to clients
 - d) All of the above
- 7) _____ protocol provides less overhead on READ operation.
 - a) Majority Protocol
 - b) Quorum Consensus Protocol
 - c) Primary Copy Protocol
 - d) Biased Protocol

- 8) Which of the following is not a characteristic of a data warehouse?
- contains historical data
 - designed for decision support
 - stores data in normalized tables
 - promotes data redundancy
- 9) _____ fragmentation splits the relation by assigning each tuple of relation R into one or more fragments.
- Horizontal
 - Vertical
 - Mixed
 - Data
- 10) A heterogeneous distributed database is _____.
- The same DBMS is used at different location and data are not distributed across all nodes.
 - The same DBMS is used at different location and data are distributed across all nodes.
 - A different DBMS is used at different location and data are not distributed across all nodes.
 - A different DBMS is used at different location and data are distributed across all nodes
- 11) In Object Oriented Databases, Nesting can be done using function _____ to create a multiset of particular attribute.
- Aggregate
 - group by
 - order by
 - Collect
- 12) Data mining is best described as the process of _____.
- identifying patterns in data
 - deducing relationships in data
 - representing data
 - simulating trends in data
- 13) Which of the following is not a NoSQL database?
- SQL Server
 - MongoDB
 - Cassandra
 - None
- 14) A global locking system is required in _____.
- shared disk architecture
 - Shared Nothing architecture
 - Shared-memory Architecture
 - None of these

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)

Day & Date: Friday 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three.** **12**
- a) List and compare different partitioning techniques.
 - b) What are different issues in designing a Data Server?
 - c) How deadlock is handled in distributed database systems?
 - d) How ranking operation can be performed on database?
 - e) List and explain 4 methods of OLAP implementation.
- Q.3 Attempt any one.** **08**
- a) Define Data Warehouse and Data Mining? Explain KDD process in detail.
 - b) In Distributed Transaction which protocol is used to ensure Atomicity?
 Explain the protocol in detail.
- Q.4 Attempt the following.** **08**
- Explain Brewer's CAP Theorem in detail.

Section – II

- Q.5 Attempt any Three.** **12**
- a) Describe characteristics of MongoDB.
 - b) Explain Type inheritance with example.
 - c) Differentiate between object oriented DBMS and Object relational DBMS.
 - d) Explain external Sort merge in detail.
 - e) With the help of diagram, explain steps in query processing.
- Q.6 Attempt any one.** **08**
- a) Explain Hadoop Distributed File System (HDFS) Architecture with diagram.
 - b) List Characteristics of NoSql. Also define Key-value store and Document Database.
- Q.7 Attempt the following.** **08**
- In Object oriented database, structured type can have *methods*. With example, write declaration, body of method and also explain how this method can be invoked on instance of Type.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)

Day & Date: Friday 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A heterogeneous distributed database is _____.
 - a) The same DBMS is used at different location and data are not distributed across all nodes.
 - b) The same DBMS is used at different location and data are distributed across all nodes.
 - c) A different DBMS is used at different location and data are not distributed across all nodes.
 - d) A different DBMS is used at different location and data are distributed across all nodes
- 2) In Object Oriented Databases, Nesting can be done using function _____ to create a multiset of particular attribute.
 - a) Aggregate
 - b) group by
 - c) order by
 - d) Collect
- 3) Data mining is best described as the process of _____.
 - a) identifying patterns in data
 - b) deducing relationships in data
 - c) representing data
 - d) simulating trends in data
- 4) Which of the following is not a NoSQL database?
 - a) SQL Server
 - b) MongoDB
 - c) Cassandra
 - d) None
- 5) A global locking system is required in _____.
 - a) shared disk architecture
 - b) Shared Nothing architecture
 - c) Shared-memory Architecture
 - d) None of these
- 6) MongoDB has been adopted as _____ software by a number of major websites and service.
 - a) frontend
 - b) backend
 - c) proprietary
 - d) All of the mentioned
- 7) Schema which has more than one fact table is called as _____.
 - a) Star schema
 - b) Star-snowflake schema
 - c) Constellation
 - d) None of these

- 8) Point out the wrong statement:
- a) Hadoop's processing capabilities are huge and its real advantage lies in the ability to process terabytes & petabytes of data.
 - b) Hadoop uses a programming model called "MapReduce", all the programs should conform to this model in order to work on Hadoop platform.
 - c) The programming model, MapReduce, used by Hadoop is difficult to write and test
 - d) All of the mentioned
- 9) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
- a) readers
 - b) readers-writer
 - c) writer
 - d) None of the mentioned
- 10) The architecture of distributed database system is greatly influenced by _____
- a) Networking
 - b) Parallelism
 - c) Distribution of Data
 - d) All of the above
- 11) In Transaction server _____.
- a) Client machines ship transaction to server systems
 - b) Requests are made by clients to servers using SQL
 - c) Server ships the information to clients
 - d) All of the above
- 12) _____ protocol provides less overhead on READ operation.
- a) Majority Protocol
 - b) Quorum Consensus Protocol
 - c) Primary Copy Protocol
 - d) Biased Protocol
- 13) Which of the following is not a characteristic of a data warehouse?
- a) contains historical data
 - b) designed for decision support
 - c) stores data in normalized tables
 - d) promotes data redundancy
- 14) _____ fragmentation splits the relation by assigning each tuple of relation R into one or more fragments.
- a) Horizontal
 - b) Vertical
 - c) Mixed
 - d) Data

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Modern Database System (197043703)**

Day & Date: Friday 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three.** **12**
- List and compare different partitioning techniques.
 - What are different issues in designing a Data Server?
 - How deadlock is handled in distributed database systems?
 - How ranking operation can be performed on database?
 - List and explain 4 methods of OLAP implementation.
- Q.3 Attempt any one.** **08**
- Define Data Warehouse and Data Mining? Explain KDD process in detail.
 - In Distributed Transaction which protocol is used to ensure Atomicity? Explain the protocol in detail.
- Q.4 Attempt the following.** **08**
- Explain Brewer's CAP Theorem in detail.

Section – II

- Q.5 Attempt any Three.** **12**
- Describe characteristics of MongoDB.
 - Explain Type inheritance with example.
 - Differentiate between object oriented DBMS and Object relational DBMS.
 - Explain external Sort merge in detail.
 - With the help of diagram, explain steps in query processing.
- Q.6 Attempt any one.** **08**
- Explain Hadoop Distributed File System (HDFS) Architecture with diagram.
 - List Characteristics of NoSql. Also define Key-value store and Document Database.
- Q.7 Attempt the following.** **08**
- In Object oriented database, structured type can have *methods*. With example, write declaration, body of method and also explain how this method can be invoked on instance of Type.

Seat No.	
----------	--

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is true about IoT?
 - a) The term things in IoT refers to anything and everything in day to day life
 - b) IoT has greater transparency, control and performance
 - c) Both a and b
 - d) None of the above
- 2) IoT is based on _____ technology.

a) Hardware	b) Software
c) None	d) Both of these
- 3) The M2M is _____ scalable than IOT.

a) Highly	b) Less
c) Very high	d) None of the above
- 4) Which one is an example for M2M?

a) Remote monitoring	b) Smart cities
c) Smart agriculture	d) All of the above
- 5) Which one of the following protocols is lightweight?

a) IP	b) HTTP
c) MQTT	d) CoAP
- 6) Which of the following protocols does not exist at the data link layer?

a) ZigBee Smart Energy	b) LoRaWAN
c) Ethernet	d) MQTT
- 7) Which layer protocol is CoAP?

a) Control layer	b) Transport layer
c) Service layer	d) Application layer
- 8) In RFID tags, the tags are _____.

a) Active	b) Passive
c) Active or passive	d) None of the above

- 9) ZigBee solutions are aimed at smart objects and sensors that have _____ needs.
- a) low bandwidth and low power
 - b) high bandwidth and low power
 - c) low bandwidth and high power
 - d) high bandwidth and high power
- 10) What is full form of LoRa?
- a) Level Range Radio
 - b) Low Range Radio
 - c) Long Range Radio
 - d) None
- 11) Xively is _____.
- a) PaaS
 - b) IaaS
 - c) DaaS
 - d) SaaS
- 12) The new cloud computing paradigm uses _____ for data collection, storage and computing.
- a) Localization
 - b) ICT
 - c) XaaS
 - d) All of the above
- 13) Process of identifying any individual _____.
- a) Auditing
 - b) Authorization
 - c) Authentication
 - d) Accounting
- 14) Which is not a functional component of security?
- a) Authentication
 - b) Authorization
 - c) Trust and reputation
 - d) Threat analysis

Seat No.	
-----------------	--

Set P

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three of the following. 12**
- a) Explain IoT enabling technologies in brief.
 - b) Write a note on M2M system architecture.
 - c) Draw and explain architecture for connecting WSN nodes.
 - d) Explain various uses of actuators in IoT.
- Q.3 Solve any Two. 16**
- a) Explain Level-1 and level-2 of IoT deployment template with example.
 - b) Define the concept of M2M system and explain the requirements for it.
 - c) Explain RFID Technology in detail.

Section – II

- Q.4 Solve any Three. 12**
- a) Explain UART protocol.
 - b) Write a note on Constrained Application Protocol (CoAP).
 - c) Explain virtualization in cloud computing.
 - d) Write a note on security requirements in IoT.
- Q.5 Solve any Two. 16**
- a) Write a note on RESTful APIs.
 - b) Write a note on IoT cloud based services using Xively.
 - c) Draw layered attacker model and explain solutions for mitigating the attacks on layers.

Seat No.	
----------	--

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In RFID tags, the tags are _____.
 - a) Active
 - b) Passive
 - c) Active or passive
 - d) None of the above
- 2) ZigBee solutions are aimed at smart objects and sensors that have _____ needs.
 - a) low bandwidth and low power
 - b) high bandwidth and low power
 - c) low bandwidth and high power
 - d) high bandwidth and high power
- 3) What is full form of LoRa?
 - a) Level Range Radio
 - b) Low Range Radio
 - c) Long Range Radio
 - d) None
- 4) Xively is _____.
 - a) PaaS
 - b) IaaS
 - c) DaaS
 - d) SaaS
- 5) The new cloud computing paradigm uses _____ for data collection, storage and computing.
 - a) Localization
 - b) ICT
 - c) XaaS
 - d) All of the above
- 6) Process of identifying any individual _____.
 - a) Auditing
 - b) Authorization
 - c) Authentication
 - d) Accounting
- 7) Which is not a functional component of security?
 - a) Authentication
 - b) Authorization
 - c) Trust and reputation
 - d) Threat analysis
- 8) Which of the following is true about IoT?
 - a) The term things in IoT refers to anything and everything in day to day life
 - b) IoT has greater transparency, control and performance
 - c) Both a and b
 - d) None of the above

- 9) IoT is based on _____ technology.
- a) Hardware
 - b) Software
 - c) None
 - d) Both of these
- 10) The M2M is _____ scalable than IOT.
- a) Highly
 - b) Less
 - c) Very high
 - d) None of the above
- 11) Which one is an example for M2M?
- a) Remote monitoring
 - b) Smart cities
 - c) Smart agriculture
 - d) All of the above
- 12) Which one of the following protocols is lightweight?
- a) IP
 - b) HTTP
 - c) MQTT
 - d) CoAP
- 13) Which of the following protocols does not exist at the data link layer?
- a) ZigBee Smart Energy
 - b) LoRaWAN
 - c) Ethernet
 - d) MQTT
- 14) Which layer protocol is CoAP?
- a) Control layer
 - b) Transport layer
 - c) Service layer
 - d) Application layer

Seat No.	
-----------------	--

Set Q

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three of the following. 12**
- a) Explain IoT enabling technologies in brief.
 - b) Write a note on M2M system architecture.
 - c) Draw and explain architecture for connecting WSN nodes.
 - d) Explain various uses of actuators in IoT.
- Q.3 Solve any Two. 16**
- a) Explain Level-1 and level-2 of IoT deployment template with example.
 - b) Define the concept of M2M system and explain the requirements for it.
 - c) Explain RFID Technology in detail.

Section – II

- Q.4 Solve any Three. 12**
- a) Explain UART protocol.
 - b) Write a note on Constrained Application Protocol (CoAP).
 - c) Explain virtualization in cloud computing.
 - d) Write a note on security requirements in IoT.
- Q.5 Solve any Two. 16**
- a) Write a note on RESTful APIs.
 - b) Write a note on IoT cloud based services using Xively.
 - c) Draw layered attacker model and explain solutions for mitigating the attacks on layers.

Seat No.	
-----------------	--

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Xively is _____.
 - a) PaaS
 - b) IaaS
 - c) DaaS
 - d) SaaS

- 2) The new cloud computing paradigm uses _____ for data collection, storage and computing.
 - a) Localization
 - b) ICT
 - c) XaaS
 - d) All of the above

- 3) Process of identifying any individual _____.
 - a) Auditing
 - b) Authorization
 - c) Authentication
 - d) Accounting

- 4) Which is not a functional component of security?
 - a) Authentication
 - b) Authorization
 - c) Trust and reputation
 - d) Threat analysis

- 5) Which of the following is true about IoT?
 - a) The term things in IoT refers to anything and everything in day to day life
 - b) IoT has greater transparency, control and performance
 - c) Both a and b
 - d) None of the above

- 6) IoT is based on _____ technology.
 - a) Hardware
 - b) Software
 - c) None
 - d) Both of these

- 7) The M2M is _____ scalable than IOT.
 - a) Highly
 - b) Less
 - c) Very high
 - d) None of the above

- 8) Which one is an example for M2M?
 - a) Remote monitoring
 - b) Smart cities
 - c) Smart agriculture
 - d) All of the above

Seat No.	
-----------------	--

Set R

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three of the following. 12**
- a) Explain IoT enabling technologies in brief.
 - b) Write a note on M2M system architecture.
 - c) Draw and explain architecture for connecting WSN nodes.
 - d) Explain various uses of actuators in IoT.

- Q.3 Solve any Two. 16**
- a) Explain Level-1 and level-2 of IoT deployment template with example.
 - b) Define the concept of M2M system and explain the requirements for it.
 - c) Explain RFID Technology in detail.

Section – II

- Q.4 Solve any Three. 12**
- a) Explain UART protocol.
 - b) Write a note on Constrained Application Protocol (CoAP).
 - c) Explain virtualization in cloud computing.
 - d) Write a note on security requirements in IoT.

- Q.5 Solve any Two. 16**
- a) Write a note on RESTful APIs.
 - b) Write a note on IoT cloud based services using Xively.
 - c) Draw layered attacker model and explain solutions for mitigating the attacks on layers.

Seat No.	
-----------------	--

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following protocols does not exist at the data link layer?

a) ZigBee Smart Energy	b) LoRaWAN
c) Ethernet	d) MQTT
- 2) Which layer protocol is CoAP?

a) Control layer	b) Transport layer
c) Service layer	d) Application layer
- 3) In RFID tags, the tags are _____.

a) Active	b) Passive
c) Active or passive	d) None of the above
- 4) ZigBee solutions are aimed at smart objects and sensors that have _____ needs.

a) low bandwidth and low power	b) high bandwidth and low power
c) low bandwidth and high power	d) high bandwidth and high power
- 5) What is full form of LoRa?

a) Level Range Radio	b) Low Range Radio
c) Long Range Radio	d) None
- 6) Xively is _____.

a) PaaS	b) IaaS
c) DaaS	d) SaaS
- 7) The new cloud computing paradigm uses _____ for data collection, storage and computing.

a) Localization	b) ICT
c) XaaS	d) All of the above
- 8) Process of identifying any individual _____.

a) Auditing	b) Authorization
c) Authentication	d) Accounting

- 9) Which is not a functional component of security?
- a) Authentication
 - b) Authorization
 - c) Trust and reputation
 - d) Threat analysis
- 10) Which of the following is true about IoT?
- a) The term things in IoT refers to anything and everything in day to day life
 - b) IoT has greater transparency, control and performance
 - c) Both a and b
 - d) None of the above
- 11) IoT is based on _____ technology.
- a) Hardware
 - b) Software
 - c) None
 - d) Both of these
- 12) The M2M is _____ scalable than IOT.
- a) Highly
 - b) Less
 - c) Very high
 - d) None of the above
- 13) Which one is an example for M2M?
- a) Remote monitoring
 - b) Smart cities
 - c) Smart agriculture
 - d) All of the above
- 14) Which one of the following protocols is lightweight?
- a) IP
 - b) HTTP
 - c) MQTT
 - d) CoAP

Seat No.	
-----------------	--

Set S

Fourth Y. (B. Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Internet of Things (197043707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three of the following. 12**
- a) Explain IoT enabling technologies in brief.
 - b) Write a note on M2M system architecture.
 - c) Draw and explain architecture for connecting WSN nodes.
 - d) Explain various uses of actuators in IoT.

- Q.3 Solve any Two. 16**
- a) Explain Level-1 and level-2 of IoT deployment template with example.
 - b) Define the concept of M2M system and explain the requirements for it.
 - c) Explain RFID Technology in detail.

Section – II

- Q.4 Solve any Three. 12**
- a) Explain UART protocol.
 - b) Write a note on Constrained Application Protocol (CoAP).
 - c) Explain virtualization in cloud computing.
 - d) Write a note on security requirements in IoT.

- Q.5 Solve any Two. 16**
- a) Write a note on RESTful APIs.
 - b) Write a note on IoT cloud based services using Xively.
 - c) Draw layered attacker model and explain solutions for mitigating the attacks on layers.

Seat No.	
----------	--

Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.
 5) Figures must be drawn wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which is non-functional software testing?
 - a) Unit testing
 - b) Block box testing
 - c) Performance testing
 - d) Regression testing
- 2) Which term is used to define testing?
 - a) Evaluating deliverable to find errors
 - b) Finding broken code
 - c) A stage of all projects
 - d) None of the above
- 3) Effective testing will reduce _____ cost.
 - a) Maintenance
 - b) Design
 - c) Coding
 - d) Documentation
- 4) Which requirements are the foundation from which quality is measured?
 - a) Hardware
 - b) Software
 - c) Programmers
 - d) None of the mentioned
- 5) In which environment we can performed the Alpha testing?
 - a) User's end
 - b) Developer's end
 - c) User's and developer's end
 - d) None of the above
- 6) What are the types of requirements?
 - a) Availability
 - b) Reliability
 - c) Usability
 - d) All of the mentioned
- 7) White box testing is not called as _____.
 - a) Glass box testing
 - b) Closed box testing
 - c) Open box testing
 - d) Clear box testing
- 8) Which of the following is not an appraisal cost in SQA?
 - a) Inter-process inspection
 - b) Maintenance
 - c) Quality planning
 - d) Testing

Seat No.	
-----------------	--

Set P

**Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
a) What is testing? List and explain the types of testing approaches.
b) Compare Mistake, Error and defect.
c) Explain Black box testing and white box testing in detail.
d) Describe Proposal review process.
e) Explain System testing.
- Q.3 Attempt any One** **06**
a) List and explain different developing testing methodologies.
b) Elaborate top-down approach for integration testing.
- Q.4 Attempt the following.** **06**
Explain Sandwich testing with a neat diagram.

Section – II

- Q.5 Attempt any Four** **16**
a) Explain in detail Bug Life Cycle.
b) Explain Software Quality Dilemma.
c) Explain in detail test case organization.
d) Explain various testing tools of Software testing.
e) Summarize the benefits of automation & tools.
- Q.6 Attempt any One.** **06**
a) Describe Reporting Bugs-Getting your Bugs fixed in test planning.
b) Write a short note on ISO 9000 Quality Standards.
- Q.7 Attempt the following.** **06**
Describe SQA Processes and Product characteristics in SQA.

Seat No.	
----------	--

Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.
 5) Figures must be drawn wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is not an appraisal cost in SQA?

a) Inter-process inspection	b) Maintenance
c) Quality planning	d) Testing
- 2) Inspections and testing are what kinds of Quality Costs?

a) Prevention	b) Internal Failure
c) External Failure	d) Appraisal
- 3) Identify the stage in which test cases are designed?

a) Test planning	b) Test configuration
c) Test specification	d) Test recording
- 4) Which of the following testing is related to the boundary value analysis?
 - a) White box and black box testing
 - b) White-box testing
 - c) Black box testing
 - d) None of the above
- 5) Software mistakes during coding are known as _____.

a) Errors	b) Failures
c) Bugs	d) Defects
- 6) Quality also can be looked at in terms of user satisfaction which includes _____.
 - a) A compliant product
 - b) Good quality output
 - c) Delivery within budget and schedule
 - d) All of the mentioned
- 7) Which of the following testing is also called Acceptance testing?

a) Beta testing	b) White-box testing
c) Grey box testing	d) Alpha testing
- 8) Which is non-functional software testing?

a) Unit testing	b) Block box testing
c) Performance testing	d) Regression testing

- 9) Which term is used to define testing?
- a) Evaluating deliverable to find errors
 - b) Finding broken code
 - c) A stage of all projects
 - d) None of the above
- 10) Effective testing will reduce _____ cost.
- a) Maintenance
 - b) Design
 - c) Coding
 - d) Documentation
- 11) Which requirements are the foundation from which quality is measured?
- a) Hardware
 - b) Software
 - c) Programmers
 - d) None of the mentioned
- 12) In which environment we can performed the Alpha testing?
- a) User's end
 - b) Developer's end
 - c) User's and developer's end
 - d) None of the above
- 13) What are the types of requirements?
- a) Availability
 - b) Reliability
 - c) Usability
 - d) All of the mentioned
- 14) White box testing is not called as _____.
- a) Glass box testing
 - b) Closed box testing
 - c) Open box testing
 - d) Clear box testing

Seat No.	
-----------------	--

Set Q

Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
a) What is testing? List and explain the types of testing approaches.
b) Compare Mistake, Error and defect.
c) Explain Black box testing and white box testing in detail.
d) Describe Proposal review process.
e) Explain System testing.
- Q.3 Attempt any One** **06**
a) List and explain different developing testing methodologies.
b) Elaborate top-down approach for integration testing.
- Q.4 Attempt the following.** **06**
Explain Sandwich testing with a neat diagram.

Section – II

- Q.5 Attempt any Four** **16**
a) Explain in detail Bug Life Cycle.
b) Explain Software Quality Dilemma.
c) Explain in detail test case organization.
d) Explain various testing tools of Software testing.
e) Summarize the benefits of automation & tools.
- Q.6 Attempt any One.** **06**
a) Describe Reporting Bugs-Getting your Bugs fixed in test planning.
b) Write a short note on ISO 9000 Quality Standards.
- Q.7 Attempt the following.** **06**
Describe SQA Processes and Product characteristics in SQA.

Seat No.	
----------	--

Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.
 5) Figures must be drawn wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following testing is related to the boundary value analysis?
 - a) White box and black box testing
 - b) White-box testing
 - c) Black box testing
 - d) None of the above
- 2) Software mistakes during coding are known as _____.
 - a) Errors
 - b) Failures
 - c) Bugs
 - d) Defects
- 3) Quality also can be looked at in terms of user satisfaction which includes _____.
 - a) A compliant product
 - b) Good quality output
 - c) Delivery within budget and schedule
 - d) All of the mentioned
- 4) Which of the following testing is also called Acceptance testing?
 - a) Beta testing
 - b) White-box testing
 - c) Grey box testing
 - d) Alpha testing
- 5) Which is non-functional software testing?
 - a) Unit testing
 - b) Block box testing
 - c) Performance testing
 - d) Regression testing
- 6) Which term is used to define testing?
 - a) Evaluating deliverable to find errors
 - b) Finding broken code
 - c) A stage of all projects
 - d) None of the above
- 7) Effective testing will reduce _____ cost.
 - a) Maintenance
 - b) Design
 - c) Coding
 - d) Documentation

- 8) Which requirements are the foundation from which quality is measured?
a) Hardware
b) Software
c) Programmers
d) None of the mentioned
- 9) In which environment we can performed the Alpha testing?
a) User's end
b) Developer's end
c) User's and developer's end
d) None of the above
- 10) What are the types of requirements?
a) Availability
b) Reliability
c) Usability
d) All of the mentioned
- 11) White box testing is not called as _____.
a) Glass box testing
b) Closed box testing
c) Open box testing
d) Clear box testing
- 12) Which of the following is not an appraisal cost in SQA?
a) Inter-process inspection
b) Maintenance
c) Quality planning
d) Testing
- 13) Inspections and testing are what kinds of Quality Costs?
a) Prevention
b) Internal Failure
c) External Failure
d) Appraisal
- 14) Identify the stage in which test cases are designed?
a) Test planning
b) Test configuration
c) Test specification
d) Test recording

Seat No.	
-----------------	--

Set R

Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) What is testing? List and explain the types of testing approaches.
 - b) Compare Mistake, Error and defect.
 - c) Explain Black box testing and white box testing in detail.
 - d) Describe Proposal review process.
 - e) Explain System testing.
- Q.3 Attempt any One** **06**
- a) List and explain different developing testing methodologies.
 - b) Elaborate top-down approach for integration testing.
- Q.4 Attempt the following.** **06**
- Explain Sandwich testing with a neat diagram.

Section – II

- Q.5 Attempt any Four** **16**
- a) Explain in detail Bug Life Cycle.
 - b) Explain Software Quality Dilemma.
 - c) Explain in detail test case organization.
 - d) Explain various testing tools of Software testing.
 - e) Summarize the benefits of automation & tools.
- Q.6 Attempt any One.** **06**
- a) Describe Reporting Bugs-Getting your Bugs fixed in test planning.
 - b) Write a short note on ISO 9000 Quality Standards.
- Q.7 Attempt the following.** **06**
- Describe SQA Processes and Product characteristics in SQA.

Seat No.	
----------	--

**Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.
5) Figures must be drawn wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What are the types of requirements?

a) Availability	b) Reliability
c) Usability	d) All of the mentioned
- 2) White box testing is not called as _____.

a) Glass box testing	b) Closed box testing
c) Open box testing	d) Clear box testing
- 3) Which of the following is not an appraisal cost in SQA?

a) Inter-process inspection	b) Maintenance
c) Quality planning	d) Testing
- 4) Inspections and testing are what kinds of Quality Costs?

a) Prevention	b) Internal Failure
c) External Failure	d) Appraisal
- 5) Identify the stage in which test cases are designed?

a) Test planning	b) Test configuration
c) Test specification	d) Test recording
- 6) Which of the following testing is related to the boundary value analysis?

a) White box and black box testing
b) White-box testing
c) Black box testing
d) None of the above
- 7) Software mistakes during coding are known as _____.

a) Errors	b) Failures
c) Bugs	d) Defects
- 8) Quality also can be looked at in terms of user satisfaction which includes _____.

a) A compliant product
b) Good quality output
c) Delivery within budget and schedule
d) All of the mentioned

Seat No.	
-----------------	--

Set S

Final Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Software Testing and Quality Assurance (197043708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) What is testing? List and explain the types of testing approaches.
 - b) Compare Mistake, Error and defect.
 - c) Explain Black box testing and white box testing in detail.
 - d) Describe Proposal review process.
 - e) Explain System testing.
- Q.3 Attempt any One** **06**
- a) List and explain different developing testing methodologies.
 - b) Elaborate top-down approach for integration testing.
- Q.4 Attempt the following.** **06**
- Explain Sandwich testing with a neat diagram.

Section – II

- Q.5 Attempt any Four** **16**
- a) Explain in detail Bug Life Cycle.
 - b) Explain Software Quality Dilemma.
 - c) Explain in detail test case organization.
 - d) Explain various testing tools of Software testing.
 - e) Summarize the benefits of automation & tools.
- Q.6 Attempt any One.** **06**
- a) Describe Reporting Bugs-Getting your Bugs fixed in test planning.
 - b) Write a short note on ISO 9000 Quality Standards.
- Q.7 Attempt the following.** **06**
- Describe SQA Processes and Product characteristics in SQA.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In _____, the chance of collision can be reduced if a station senses the medium before trying to use it.

a) MA	b) CSMA
c) FDMA	d) CDMA
- 2) In _____ collision are avoided through the use of three strategies: the interface space, the contention window, and acknowledgement.

a) CSMA/CA	b) CSMA/CD
c) Either a or b	d) Both a and b
- 3) In the _____ method, a station needs to make a reservation before sending data. Time is divided into intervals.

a) Reservation	b) Polling
c) Taken passing	d) None
- 4) A key characteristics of a WSN is its ability of self-mange is called _____.

a) Scalability	b) Predictability
c) Adaptability	d) None
- 5) _____ is responsible for configuration and reconfiguration of sensor nodes to establish or maintain network connectivity.

a) task management plane	b) Power management plane
c) connection management plane	d) None of these
- 6) Sensor Network in _____.

a) Heterogeneous system consisting of tiny sensors	b) Homogeneous system used in wireless
c) Very important for security	d) All of the mentioned
- 7) WSN nodes cooperatively organize the network using distributed algorithms and protocols this principle is called _____.

a) Mac protocol	b) routing protocol
c) Self-organization	d) none of these

Seat No.	
----------	--

Set

P

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Answer any four questions. 16

- a) What is the main purpose of the MAC layer and why is this challenging in networks with shared media?
- b) What are the advantages and disadvantages of contention-free and contention-based medium access strategies?
- c) Explain the concept of directed diffusion.
- d) Discuss on various challenges of wireless sensor networks.
- e) Discuss the characteristic requirements of WSN.

Q.3 Answer any two questions. 12

- a) Sketch the architecture of Sensor Node Structure and explain the function of the units.
- b) Explain the design approaches and performance of S-MAC protocol.
- c) Compare a proactive routing protocol such as DSDV with a reactive protocol such as DSR with respect to overheads and route optimality.

Section – II

Q.4 Answer any four questions. 16

- a) List some hardware platforms for WSN with their features
- b) Explain Passive power conservation mechanism using Power Aware Multi access Protocol with Signaling (PAMAS).
- c) Explain the difference between external and internal time synchronization.
- d) Name two concrete scenarios or applications where localization is required.
- e) What are the design goals of a Transport Layer Protocol in Ad hoc networks?

Q.5 Answer any two questions. 12

- a) Discuss all Active Power Conservation Mechanisms in WSN.
- b) Discuss the differences and similarities in the design of the TPSN and the LTS synchronization protocols.
- c) Discuss IMote Node Architecture used in Wireless sensor network.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ node acts as interface between WSN and internet.
 - a) Sink
 - b) sensor node
 - c) link node
 - d) None of these
- 2) To A packet in Transmission Control Protocol (TCP) is called as _____.
 - a) Transmitted slots
 - b) packets
 - c) Segments
 - d) None of above
- 3) Following are data centric routing:
 - a) SPIN
 - b) Directed diffusion
 - c) Rumor routing
 - d) All of above
- 4) DSDV & OLSR are:
 - a) Proactive routing discovery
 - b) Reactive routing
 - c) None
 - d) Both
- 5) Which layer is responsible for reliable data delivery required by the application layer?
 - a) Application layer
 - b) transport layer
 - c) data link layer
 - d) none of these
- 6) _____ is the core of WSN which collects data from sensors.
 - a) Controller
 - b) Processor
 - c) Trans-receiver
 - d) Power Amplifier
- 7) In IEEE 802.11 network, different BSS are connected by _____.
 - a) AP
 - b) STA
 - c) DSS
 - d) All of above
- 8) In _____, the chance of collision can be reduced if a station senses the medium before trying to use it.
 - a) MA
 - b) CSMA
 - c) FDMA
 - d) CDMA

- 9) In ____ collision are avoided through the use of three strategies: the interface space, the contention window, and acknowledgement.
- a) CSMA/CA
 - b) CSMA/CD
 - c) Either a or b
 - d) Both a and b
- 10) In the _____ method, a station needs to make a reservation before sending data. Time is divided into intervals.
- a) Reservation
 - b) Polling
 - c) Taken passing
 - d) None
- 11) A key characteristics of a WSN is its ability of self-mange is called ____.
- a) Scalability
 - b) Predictability
 - c) Adaptability
 - d) None
- 12) ____ is responsible for configuration and reconfiguration of sensor nodes to establish or maintain network connectivity.
- a) task management plane
 - b) Power management plane
 - c) connection management plane
 - d) None of these
- 13) Sensor Network in ____.
- a) Heterogeneous system consisting of tiny sensors
 - b) Homogeneous system used in wireless
 - c) Very important for security
 - d) All of the mentioned
- 14) WSN nodes cooperatively organize the network using distributed algorithms and protocols this principle is called ____.
- a) Mac protocol
 - b) routing protocol
 - c) Self-organization
 - d) none of these

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Answer any four questions. 16

- What is the main purpose of the MAC layer and why is this challenging in networks with shared media?
- What are the advantages and disadvantages of contention-free and contention-based medium access strategies?
- Explain the concept of directed diffusion.
- Discuss on various challenges of wireless sensor networks.
- Discuss the characteristic requirements of WSN.

Q.3 Answer any two questions. 12

- Sketch the architecture of Sensor Node Structure and explain the function of the units.
- Explain the design approaches and performance of S-MAC protocol.
- Compare a proactive routing protocol such as DSDV with a reactive protocol such as DSR with respect to overheads and route optimality.

Section – II

Q.4 Answer any four questions. 16

- List some hardware platforms for WSN with their features
- Explain Passive power conservation mechanism using Power Aware Multi access Protocol with Signaling (PAMAS).
- Explain the difference between external and internal time synchronization.
- Name two concrete scenarios or applications where localization is required.
- What are the design goals of a Transport Layer Protocol in Ad hoc networks?

Q.5 Answer any two questions. 12

- Discuss all Active Power Conservation Mechanisms in WSN.
- Discuss the differences and similarities in the design of the TPSN and the LTS synchronization protocols.
- Discuss IMote Node Architecture used in Wireless sensor network.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) DSDV & OLSR are:

a) Proactive routing discovery	b) Reactive routing
c) None	d) Both
- 2) Which layer is responsible for reliable data delivery required by the application layer?

a) Application layer	b) transport layer
c) data link layer	d) none of these
- 3) _____ is the core of WSN which collects data from sensors.

a) Controller	b) Processor
c) Trans-receiver	d) Power Amplifier
- 4) In IEEE 802.11 network, different BSS are connected by _____.

a) AP	b) STA
c) DSS	d) All of above
- 5) In _____, the chance of collision can be reduced if a station senses the medium before trying to use it.

a) MA	b) CSMA
c) FDMA	d) CDMA
- 6) In _____ collision are avoided through the use of three strategies: the interface space, the contention window, and acknowledgement.

a) CSMA/CA	b) CSMA/CD
c) Either a or b	d) Both a and b
- 7) In the _____ method, a station needs to make a reservation before sending data. Time is divided into intervals.

a) Reservation	b) Polling
c) Taken passing	d) None
- 8) A key characteristics of a WSN is its ability of self-mange is called _____.

a) Scalability	b) Predictability
c) Adaptability	d) None

- 9) _____ is responsible for configuration and reconfiguration of sensor nodes to establish or maintain network connectivity.
- a) task management plane b) Power management plane
c) connection management plane d) None of these
- 10) Sensor Network in _____.
- a) Heterogeneous system consisting of tiny sensors
b) Homogeneous system used in wireless
c) Very important for security
d) All of the mentioned
- 11) WSN nodes cooperatively organize the network using distributed algorithms and protocols this principle is called _____.
- a) Mac protocol b) routing protocol
c) Self-organization d) none of these
- 12) _____ node acts as interface between WSN and internet.
- a) Sink b) sensor node
c) link node d) None of these
- 13) To A packet in Transmission Control Protocol (TCP) is called as _____.
- a) Transmitted slots b) packets
c) Segments d) None of above
- 14) Following are data centric routing:
- a) SPIN b) Directed diffusion
c) Rumor routing d) All of above

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Answer any four questions. 16

- What is the main purpose of the MAC layer and why is this challenging in networks with shared media?
- What are the advantages and disadvantages of contention-free and contention-based medium access strategies?
- Explain the concept of directed diffusion.
- Discuss on various challenges of wireless sensor networks.
- Discuss the characteristic requirements of WSN.

Q.3 Answer any two questions. 12

- Sketch the architecture of Sensor Node Structure and explain the function of the units.
- Explain the design approaches and performance of S-MAC protocol.
- Compare a proactive routing protocol such as DSDV with a reactive protocol such as DSR with respect to overheads and route optimality.

Section – II

Q.4 Answer any four questions. 16

- List some hardware platforms for WSN with their features
- Explain Passive power conservation mechanism using Power Aware Multi access Protocol with Signaling (PAMAS).
- Explain the difference between external and internal time synchronization.
- Name two concrete scenarios or applications where localization is required.
- What are the design goals of a Transport Layer Protocol in Ad hoc networks?

Q.5 Answer any two questions. 12

- Discuss all Active Power Conservation Mechanisms in WSN.
- Discuss the differences and similarities in the design of the TPSN and the LTS synchronization protocols.
- Discuss IMote Node Architecture used in Wireless sensor network.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Sensor Network in _____.
 - a) Heterogeneous system consisting of tiny sensors
 - b) Homogeneous system used in wireless
 - c) Very important for security
 - d) All of the mentioned
- 2) WSN nodes cooperatively organize the network using distributed algorithms and protocols this principle is called _____.
 - a) Mac protocol
 - b) routing protocol
 - c) Self-organization
 - d) none of these
- 3) _____ node acts as interface between WSN and internet.
 - a) Sink
 - b) sensor node
 - c) link node
 - d) None of these
- 4) To A packet in Transmission Control Protocol (TCP) is called as _____.
 - a) Transmitted slots
 - b) packets
 - c) Segments
 - d) None of above
- 5) Following are data centric routing:
 - a) SPIN
 - b) Directed diffusion
 - c) Rumor routing
 - d) All of above
- 6) DSDV & OLSR are:
 - a) Proactive routing discovery
 - b) Reactive routing
 - c) None
 - d) Both
- 7) Which layer is responsible for reliable data delivery required by the application layer?
 - a) Application layer
 - b) transport layer
 - c) data link layer
 - d) none of these
- 8) _____ is the core of WSN which collects data from sensors.
 - a) Controller
 - b) Processor
 - c) Trans-receiver
 - d) Power Amplifier

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Adhoc and Sensor Networks (197043709)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Answer any four questions. 16

- What is the main purpose of the MAC layer and why is this challenging in networks with shared media?
- What are the advantages and disadvantages of contention-free and contention-based medium access strategies?
- Explain the concept of directed diffusion.
- Discuss on various challenges of wireless sensor networks.
- Discuss the characteristic requirements of WSN.

Q.3 Answer any two questions. 12

- Sketch the architecture of Sensor Node Structure and explain the function of the units.
- Explain the design approaches and performance of S-MAC protocol.
- Compare a proactive routing protocol such as DSDV with a reactive protocol such as DSR with respect to overheads and route optimality.

Section – II

Q.4 Answer any four questions. 16

- List some hardware platforms for WSN with their features
- Explain Passive power conservation mechanism using Power Aware Multi access Protocol with Signaling (PAMAS).
- Explain the difference between external and internal time synchronization.
- Name two concrete scenarios or applications where localization is required.
- What are the design goals of a Transport Layer Protocol in Ad hoc networks?

Q.5 Answer any two questions. 12

- Discuss all Active Power Conservation Mechanisms in WSN.
- Discuss the differences and similarities in the design of the TPSN and the LTS synchronization protocols.
- Discuss IMote Node Architecture used in Wireless sensor network.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct Answer:**14**

- 1) Which of the following statement is true about Business Intelligence?
 - a) BI convert raw data into meaningful information.
 - b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
 - c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts.
 - d) All of the above
- 2) Tactical models are used mainly by middle managers to assist in allocating and controlling the organization's resources. (State True/False).
 - a) True
 - b) False
- 3) Simple exponential smoothing model, also called as _____.
 - a) White model
 - b) Black model
 - c) Brown model
 - d) None of the mentioned
- 4) _____ is an observation which contains either very low value or very high value in comparison to other observed values.
 - a) Outlier
 - b) Independent Variable
 - c) Dependent Variable
 - d) Numerical Variable
- 5) Which of the following is/are Benefits of Dimensional Modelling?
 - a) Faster Data Retrieval
 - b) Better Understandability
 - c) Extensibility
 - d) All of the mentioned
- 6) Which of the following components is/are present in Business Intelligence architecture?
 - a) Data sources
 - b) Data warehouses and data marts
 - c) Business intelligence methodologies
 - d) All of the mentioned
- 7) A reduced representation of the data set that is much smaller in volume but yet produce the same analytical results is called _____.
 - a) Data validation
 - b) Data reduction
 - c) Data exploration
 - d) Data transformation

- 8) Clickstream analysis deals with _____ mining in the taxonomy of web mining analysis.
- | | |
|-------------------|---------------------|
| a) Content mining | b) Structure mining |
| c) Usage mining | d) Text mining |
- 9) _____ is the bridge between data warehouse and decision support application.
- | | |
|-----------------|-----------------|
| a) Logical data | b) Complex data |
| c) Nominal data | d) Metadata |
- 10) A time series component, _____ can be positive or negative depending on whether the time series exhibits an increasing long term pattern or a decreasing long term pattern.
- | | |
|--------------|-------------|
| a) Seasonal | b) Trend |
| c) Irregular | d) Cyclical |
- 11) A decision is _____ if it is based on well-defined and recurring decision-making procedure.
- | | |
|-------------------------------|---------------------------|
| a) Structured Decisions | b) Unstructured Decisions |
| c) Semi-structured decisions. | d) None of the mentioned |
- 12) Apriori algorithm uses a _____ approach, for finding Association rules in a database that contains transactions.
- | | |
|-------------|--------------------------|
| a) Top-down | b) Bottom-up |
| c) Both | d) None of the mentioned |
- 13) The purpose of _____ is to gain insight from the purchases made by customers in order to extract useful knowledge to plan marketing actions.
- | | |
|-------------------------|---------------------------|
| a) Clickstream analysis | b) Text mining |
| c) Purchase analysis | d) Market basket analysis |
- 14) _____ is an oriented graph consisting of nodes, which in the biological analogy represent neurons, connected by arcs, which corresponds to dendrites and synapses.
- | | |
|--------------------|---------------|
| a) Neural networks | b) Regression |
| c) Classification | d) Clustering |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three** **12**
- a) Compare and contrast the OLTP and OLAP.
 - b) What is the role of mathematical models in business intelligence?
 - c) Illustrate the components of Business Intelligence Architecture with neat diagram.
 - d) Elaborate the development of decision support system.
- Q.3 Attempt any One.** **08**
- a) How data validation takes place in Business Intelligence? Describe with example.
 - b) What is Data Warehouse Schema? Differentiate between Star schema and snowflake schema.
- Q.4 Attempt the following** **08**
- Illustrate the Bivariate analysis and its types. Also elaborate Numerical-Numerical Bivariate analysis with appropriate example.

Section – II

- Q.5 Attempt any Three** **12**
- a) Describe the components of Salesforce management.
 - b) Elaborate Apriori algorithm.
 - c) Elaborate clustering method.
 - d) Write a short note on classification tree.
- Q.6 Attempt any One.** **08**
- a) Describe Linear Regression and types of linear regression.
 - b) What is Hierarchical clustering? Describe working of Agglomerative Hierarchical clustering with example.
- Q.7 Attempt the following** **08**
- How time-series analysis works? Describe its components.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct Answer:**14**

- 1) Clickstream analysis deals with _____ mining in the taxonomy of web mining analysis.
 - a) Content mining
 - b) Structure mining
 - c) Usage mining
 - d) Text mining
- 2) _____ is the bridge between data warehouse and decision support application.
 - a) Logical data
 - b) Complex data
 - c) Nominal data
 - d) Metadata
- 3) A time series component, _____ can be positive or negative depending on whether the time series exhibits an increasing long term pattern or a decreasing long term pattern.
 - a) Seasonal
 - b) Trend
 - c) Irregular
 - d) Cyclical
- 4) A decision is _____ if it is based on well-defined and recurring decision-making procedure.
 - a) Structured Decisions
 - b) Unstructured Decisions
 - c) Semi-structured decisions.
 - d) None of the mentioned
- 5) Apriori algorithm uses a _____ approach, for finding Association rules in a database that contains transactions.
 - a) Top-down
 - b) Bottom-up
 - c) Both
 - d) None of the mentioned
- 6) The purpose of _____ is to gain insight from the purchases made by customers in order to extract useful knowledge to plan marketing actions.
 - a) Clickstream analysis
 - b) Text mining
 - c) Purchase analysis
 - d) Market basket analysis
- 7) _____ is an oriented graph consisting of nodes, which in the biological analogy represent neurons, connected by arcs, which corresponds to dendrites and synapses.
 - a) Neural networks
 - b) Regression
 - c) Classification
 - d) Clustering

- 8) Which of the following statement is true about Business Intelligence?
- a) BI convert raw data into meaningful information.
 - b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
 - c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts.
 - d) All of the above
- 9) Tactical models are used mainly by middle managers to assist in allocating and controlling the organization's resources. (State True/False).
- a) True
 - b) False
- 10) Simple exponential smoothing model, also called as _____.
- a) White model
 - b) Black model
 - c) Brown model
 - d) None of the mentioned
- 11) _____ is an observation which contains either very low value or very high value in comparison to other observed values.
- a) Outlier
 - b) Independent Variable
 - c) Dependent Variable
 - d) Numerical Variable
- 12) Which of the following is/are Benefits of Dimensional Modelling?
- a) Faster Data Retrieval
 - b) Better Understandability
 - c) Extensibility
 - d) All of the mentioned
- 13) Which of the following components is/are present in Business Intelligence architecture?
- a) Data sources
 - b) Data warehouses and data marts
 - c) Business intelligence methodologies
 - d) All of the mentioned
- 14) A reduced representation of the data set that is much smaller in volume but yet produce the same analytical results is called _____.
- a) Data validation
 - b) Data reduction
 - c) Data exploration
 - d) Data transformation

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three** **12**
- a) Compare and contrast the OLTP and OLAP.
 - b) What is the role of mathematical models in business intelligence?
 - c) Illustrate the components of Business Intelligence Architecture with neat diagram.
 - d) Elaborate the development of decision support system.
- Q.3 Attempt any One.** **08**
- a) How data validation takes place in Business Intelligence? Describe with example.
 - b) What is Data Warehouse Schema? Differentiate between Star schema and snowflake schema.
- Q.4 Attempt the following** **08**
- Illustrate the Bivariate analysis and its types. Also elaborate Numerical-Numerical Bivariate analysis with appropriate example.

Section – II

- Q.5 Attempt any Three** **12**
- a) Describe the components of Salesforce management.
 - b) Elaborate Apriori algorithm.
 - c) Elaborate clustering method.
 - d) Write a short note on classification tree.
- Q.6 Attempt any One.** **08**
- a) Describe Linear Regression and types of linear regression.
 - b) What is Hierarchical clustering? Describe working of Agglomerative Hierarchical clustering with example.
- Q.7 Attempt the following** **08**
- How time-series analysis works? Describe its components.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct Answer:**14**

- 1) A decision is _____ if it is based on well-defined and recurring decision-making procedure.
 - a) Structured Decisions
 - b) Unstructured Decisions
 - c) Semi-structured decisions.
 - d) None of the mentioned
- 2) Apriori algorithm uses a _____ approach, for finding Association rules in a database that contains transactions.
 - a) Top-down
 - b) Bottom-up
 - c) Both
 - d) None of the mentioned
- 3) The purpose of _____ is to gain insight from the purchases made by customers in order to extract useful knowledge to plan marketing actions.
 - a) Clickstream analysis
 - b) Text mining
 - c) Purchase analysis
 - d) Market basket analysis
- 4) _____ is an oriented graph consisting of nodes, which in the biological analogy represent neurons, connected by arcs, which corresponds to dendrites and synapses.
 - a) Neural networks
 - b) Regression
 - c) Classification
 - d) Clustering
- 5) Which of the following statement is true about Business Intelligence?
 - a) BI convert raw data into meaningful information.
 - b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
 - c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts.
 - d) All of the above
- 6) Tactical models are used mainly by middle managers to assist in allocating and controlling the organization's resources. (State True/False).
 - a) True
 - b) False
- 7) Simple exponential smoothing model, also called as _____.
 - a) White model
 - b) Black model
 - c) Brown model
 - d) None of the mentioned

- 8) _____ is an observation which contains either very low value or very high value in comparison to other observed values.
- a) Outlier
 - b) Independent Variable
 - c) Dependent Variable
 - d) Numerical Variable
- 9) Which of the following is/are Benefits of Dimensional Modelling?
- a) Faster Data Retrieval
 - b) Better Understandability
 - c) Extensibility
 - d) All of the mentioned
- 10) Which of the following components is/are present in Business Intelligence architecture?
- a) Data sources
 - b) Data warehouses and data marts
 - c) Business intelligence methodologies
 - d) All of the mentioned
- 11) A reduced representation of the data set that is much smaller in volume but yet produce the same analytical results is called _____.
- a) Data validation
 - b) Data reduction
 - c) Data exploration
 - d) Data transformation
- 12) Clickstream analysis deals with _____ mining in the taxonomy of web mining analysis.
- a) Content mining
 - b) Structure mining
 - c) Usage mining
 - d) Text mining
- 13) _____ is the bridge between data warehouse and decision support application.
- a) Logical data
 - b) Complex data
 - c) Nominal data
 - d) Metadata
- 14) A time series component, _____ can be positive or negative depending on whether the time series exhibits an increasing long term pattern or a decreasing long term pattern.
- a) Seasonal
 - b) Trend
 - c) Irregular
 - d) Cyclical

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three** **12**
- a) Compare and contrast the OLTP and OLAP.
 - b) What is the role of mathematical models in business intelligence?
 - c) Illustrate the components of Business Intelligence Architecture with neat diagram.
 - d) Elaborate the development of decision support system.
- Q.3 Attempt any One.** **08**
- a) How data validation takes place in Business Intelligence? Describe with example.
 - b) What is Data Warehouse Schema? Differentiate between Star schema and snowflake schema.
- Q.4 Attempt the following** **08**
- Illustrate the Bivariate analysis and its types. Also elaborate Numerical-Numerical Bivariate analysis with appropriate example.

Section – II

- Q.5 Attempt any Three** **12**
- a) Describe the components of Salesforce management.
 - b) Elaborate Apriori algorithm.
 - c) Elaborate clustering method.
 - d) Write a short note on classification tree.
- Q.6 Attempt any One.** **08**
- a) Describe Linear Regression and types of linear regression.
 - b) What is Hierarchical clustering? Describe working of Agglomerative Hierarchical clustering with example.
- Q.7 Attempt the following** **08**
- How time-series analysis works? Describe its components.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct Answer:

14

- 1) Which of the following components is/are present in Business Intelligence architecture?
 - a) Data sources
 - b) Data warehouses and data marts
 - c) Business intelligence methodologies
 - d) All of the mentioned
- 2) A reduced representation of the data set that is much smaller in volume but yet produce the same analytical results is called _____.
 - a) Data validation
 - b) Data reduction
 - c) Data exploration
 - d) Data transformation
- 3) Clickstream analysis deals with _____ mining in the taxonomy of web mining analysis.
 - a) Content mining
 - b) Structure mining
 - c) Usage mining
 - d) Text mining
- 4) _____ is the bridge between data warehouse and decision support application.
 - a) Logical data
 - b) Complex data
 - c) Nominal data
 - d) Metadata
- 5) A time series component, _____ can be positive or negative depending on whether the time series exhibits an increasing long term pattern or a decreasing long term pattern.
 - a) Seasonal
 - b) Trend
 - c) Irregular
 - d) Cyclical
- 6) A decision is _____ if it is based on well-defined and recurring decision-making procedure.
 - a) Structured Decisions
 - b) Unstructured Decisions
 - c) Semi-structured decisions.
 - d) None of the mentioned
- 7) Apriori algorithm uses a _____ approach, for finding Association rules in a database that contains transactions.
 - a) Top-down
 - b) Bottom-up
 - c) Both
 - d) None of the mentioned

- 8) The purpose of _____ is to gain insight from the purchases made by customers in order to extract useful knowledge to plan marketing actions.
- a) Clickstream analysis b) Text mining
c) Purchase analysis d) Market basket analysis
- 9) _____ is an oriented graph consisting of nodes, which in the biological analogy represent neurons, connected by arcs, which corresponds to dendrites and synapses.
- a) Neural networks b) Regression
c) Classification d) Clustering
- 10) Which of the following statement is true about Business Intelligence?
- a) BI convert raw data into meaningful information.
b) BI has a direct impact on organization's strategic, tactical and operational business decisions.
c) BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts.
d) All of the above
- 11) Tactical models are used mainly by middle managers to assist in allocating and controlling the organization's resources. (State True/False).
- a) True b) False
- 12) Simple exponential smoothing model, also called as _____.
- a) White model b) Black model
c) Brown model d) None of the mentioned
- 13) _____ is an observation which contains either very low value or very high value in comparison to other observed values.
- a) Outlier b) Independent Variable
c) Dependent Variable d) Numerical Variable
- 14) Which of the following is/are Benefits of Dimensional Modelling?
- a) Faster Data Retrieval b) Better Understandability
c) Extensibility d) All of the mentioned

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Business Intelligence (197043710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three** **12**
- a) Compare and contrast the OLTP and OLAP.
 - b) What is the role of mathematical models in business intelligence?
 - c) Illustrate the components of Business Intelligence Architecture with neat diagram.
 - d) Elaborate the development of decision support system.
- Q.3 Attempt any One.** **08**
- a) How data validation takes place in Business Intelligence? Describe with example.
 - b) What is Data Warehouse Schema? Differentiate between Star schema and snowflake schema.
- Q.4 Attempt the following** **08**
- Illustrate the Bivariate analysis and its types. Also elaborate Numerical-Numerical Bivariate analysis with appropriate example.

Section – II

- Q.5 Attempt any Three** **12**
- a) Describe the components of Salesforce management.
 - b) Elaborate Apriori algorithm.
 - c) Elaborate clustering method.
 - d) Write a short note on classification tree.
- Q.6 Attempt any One.** **08**
- a) Describe Linear Regression and types of linear regression.
 - b) What is Hierarchical clustering? Describe working of Agglomerative Hierarchical clustering with example.
- Q.7 Attempt the following** **08**
- How time-series analysis works? Describe its components.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives. 14

- 1) The problem of finding hidden structure in unlabeled data is called _____.
 a) Supervised learning b) Unsupervised learning
 c) Reinforcement learning d) none of these
- 2) Some telecommunication company wants to segment their customer into distinct groups in order to send appropriate subscription offer, this is an example of _____.
 a) Supervised learning b) Data extraction
 c) Serration d) Unsupervised learning
- 3) Self-organizing maps are example of _____.
 a) Unsupervised learning b) supervised learning
 c) Reinforcement learning d) Missing data imputation
- 4) Assume you want to perform supervised learning and to predict number of newborns according to size of strokes population _____.
 a) Classification b) Regression
 c) Clustering d) Grouping
- 5) Classification is _____.
 a) a subdivision of set of example into number of classes
 b) a measure of accuracy, of the classification of a concept that is given by a certain theory
 c) a task of assigning a classification to a set of examples
 d) All of above
- 6) Cluster is _____.
 a) Group of similar objects that differ significantly from other object
 b) Operation on database to transform or simplify data in order to prepare it for machine learning algorithms
 c) Symbolic representation of facts or ideas from which information can potentially be extracted
 d) all of above

Seat No.	
-----------------	--

Set	P
------------	----------

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) What is data mining?
 - b) Explain classic problems in machine learning that are highly related to data mining.
 - c) Summarize the KDD process in detail?
 - d) Elaborate Histogram with example.
- Q.3 Attempt any Two. 16**
- a) Define each of the following data mining functionalities: characterization, discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with.
 - b) Explain with an example Bayesian classification.
 - c) Why data need to be Preprocess?

Section – II

- Q.4 Attempt any Three. 12**
- a) What is cluster analysis?
 - b) Explain Sampling algorithm.
 - c) Explain Text mining hierarchy in detail.
 - d) Compare Data Mining and Web Mining.
- Q.5 Attempt any Two. 16**
- a) Illustrate the Partition algorithm with example.
 - b) What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines. Elaborate the types of outliers.
 - c) Identify an outlier using clustering-based outlier detection method with suitable example.

- 7) What does FP growth algorithm do?
a) It mines all frequent patterns through pruning rules with lesser support
b) It mines all frequent patterns through pruning rules with higher support
c) It mines all frequent patterns by constructing a FP tree
d) All of the above
- 8) The problem of finding hidden structure in unlabeled data is called _____.
a) Supervised learning b) Unsupervised learning
c) Reinforcement learning d) none of these
- 9) Some telecommunication company wants to segment their customer into distinct groups in order to send appropriate subscription offer, this is an example of _____.
a) Supervised learning b) Data extraction
c) Serration d) Unsupervised learning
- 10) Self-organizing maps are example of _____.
a) Unsupervised learning b) supervised learning
c) Reinforcement learning d) Missing data imputation
- 11) Assume you want to perform supervised learning and to predict number of newborns according to size of strokes population _____.
a) Classification b) Regression
c) Clustering d) Grouping
- 12) Classification is _____.
a) a subdivision of set of example into number of classes
b) a measure of accuracy, of the classification of a concept that is given by a certain theory
c) a task of assigning a classification to a set of examples
d) All of above
- 13) Cluster is _____.
a) Group of similar objects that differ significantly from other object
b) Operation on database to transform or simplify data in order to prepare it for machine learning algorithms
c) Symbolic representation of facts or ideas from which information can potentially be extracted
d) all of above
- 14) Discrimination between spam and ham emails is a classification task,
a) True b) False

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) What is data mining?
 - b) Explain classic problems in machine learning that are highly related to data mining.
 - c) Summarize the KDD process in detail?
 - d) Elaborate Histogram with example.
- Q.3 Attempt any Two. 16**
- a) Define each of the following data mining functionalities: characterization, discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with.
 - b) Explain with an example Bayesian classification.
 - c) Why data need to be Preprocess?

Section – II

- Q.4 Attempt any Three. 12**
- a) What is cluster analysis?
 - b) Explain Sampling algorithm.
 - c) Explain Text mining hierarchy in detail.
 - d) Compare Data Mining and Web Mining.
- Q.5 Attempt any Two. 16**
- a) Illustrate the Partition algorithm with example.
 - b) What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines. Elaborate the types of outliers.
 - c) Identify an outlier using clustering-based outlier detection method with suitable example.

Seat No.	
----------	--

Set	R
-----	---

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives.

14

- 1) The output of KDD is _____.
 - a) Data
 - b) Information
 - c) Query
 - d) Useful information
- 2) Strategic value of data mining is _____.
 - a) cost-sensitive
 - b) work-sensitive
 - c) time-sensitive
 - d) technical-sensitive
- 3) What does Apriori algorithm do?
 - a) It mines all frequent patterns through pruning rules with lesser support
 - b) It mines all frequent patterns through pruning rules with higher support
 - c) Both a and b
 - d) None of the above
- 4) What does FP growth algorithm do?
 - a) It mines all frequent patterns through pruning rules with lesser support
 - b) It mines all frequent patterns through pruning rules with higher support
 - c) It mines all frequent patterns by constructing a FP tree
 - d) All of the above
- 5) The problem of finding hidden structure in unlabeled data is called _____.
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) none of these
- 6) Some telecommunication company wants to segment their customer into distinct groups in order to send appropriate subscription offer, this is an example of _____.
 - a) Supervised learning
 - b) Data extraction
 - c) Serration
 - d) Unsupervised learning
- 7) Self-organizing maps are example of _____.
 - a) Unsupervised learning
 - b) supervised learning
 - c) Reinforcement learning
 - d) Missing data imputation

Seat No.	
----------	--

Set	R
-----	---

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) What is data mining?
 - b) Explain classic problems in machine learning that are highly related to data mining.
 - c) Summarize the KDD process in detail?
 - d) Elaborate Histogram with example.
- Q.3 Attempt any Two. 16**
- a) Define each of the following data mining functionalities: characterization, discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with.
 - b) Explain with an example Bayesian classification.
 - c) Why data need to be Preprocess?

Section – II

- Q.4 Attempt any Three. 12**
- a) What is cluster analysis?
 - b) Explain Sampling algorithm.
 - c) Explain Text mining hierarchy in detail.
 - d) Compare Data Mining and Web Mining.
- Q.5 Attempt any Two. 16**
- a) Illustrate the Partition algorithm with example.
 - b) What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines. Elaborate the types of outliers.
 - c) Identify an outlier using clustering-based outlier detection method with suitable example.

Seat No.	
----------	--

Set	S
-----	---

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives.

14

- 1) Cluster is _____.
 - a) Group of similar objects that differ significantly from other object
 - b) Operation on database to transform or simplify data in order to prepare it for machine learning algorithms
 - c) Symbolic representation of facts or ideas from which information can potentially be extracted
 - d) all of above
- 2) Discrimination between spam and ham emails is a classification task,
 - a) True
 - b) False
- 3) It may be better to avoid the metric of ROC curve as it can suffer from accuracy paradox _____.
 - a) True
 - b) False
- 4) Data mining can also applied to other forms such as _____.
 - i) Data streams
 - ii) Sequence data
 - iii) Networked data
 - iv) Text data
 - v) Spatial data
 - a) i, ii, iii and v only
 - b) ii, iii, iv and v only
 - c) i, iii, iv and v only
 - d) All i, ii, iii, iv and v
- 5) _____ is the process of finding a model that describes and distinguishes data classes or concepts.
 - a) Data Characterization
 - b) Data Classification
 - c) Data discrimination
 - d) Data selection
- 6) The output of KDD is _____.
 - a) Data
 - b) Information
 - c) Query
 - d) Useful information

Seat No.	
----------	--

Set	S
-----	---

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Data Mining (197043711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) What is data mining?
 - b) Explain classic problems in machine learning that are highly related to data mining.
 - c) Summarize the KDD process in detail?
 - d) Elaborate Histogram with example.
- Q.3 Attempt any Two. 16**
- a) Define each of the following data mining functionalities: characterization, discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with.
 - b) Explain with an example Bayesian classification.
 - c) Why data need to be Preprocess?

Section – II

- Q.4 Attempt any Three. 12**
- a) What is cluster analysis?
 - b) Explain Sampling algorithm.
 - c) Explain Text mining hierarchy in detail.
 - d) Compare Data Mining and Web Mining.
- Q.5 Attempt any Two. 16**
- a) Illustrate the Partition algorithm with example.
 - b) What do you mean by Web Crawler? Elaborate the process of Web Crawler. List the names of web crawlers used by various search engines. Elaborate the types of outliers.
 - c) Identify an outlier using clustering-based outlier detection method with suitable example.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- What is new in management information systems?
- How information systems are transforming Business?
- How information systems impact on organizations?
- What are the challenges posed by strategic information systems?
- Elaborate relationship among ethical, social, political issues in an information society.

Q.3 Attempt Any Two. 16

- Describe organizations and its features in detail.
- Describe tools and technologies used for collaboration and social business.
- Elaborate challenges to the protection individual privacy and intellectual property.

Section – II

Q.4 Attempt Any Three. 12

- Describe components of IT Infrastructure.
- What are the major capabilities of database management systems?
- Describe different tools of Security Management.
- What are the different features of e-commerce?
- Describe auditing in IT Security.

Q.5 Attempt Any Two. 16

- Describe different types of networks.
- What are the contemporary software platform trends used in IT infrastructure?
- Describe role of M-commerce in business & its applications.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Cloud computing services consists of _____ type of services.
 - a) IaaS
 - b) SaaS
 - c) PaaS
 - d) All of the options
- 2) _____ platforms include hardware, software and management services to support a firm's website including web hosting services, routers and or cabling and wireless equipments.
 - a) Internet
 - b) System management
 - c) Data management
 - d) Mainframe
- 3) Linux Perhaps the most well-known _____ software is Linux, an operating system related to Unix.
 - a) close source
 - b) open source
 - c) system
 - d) None of these
- 4) E-Commerce stands for _____.
 - a) Electrical Commerce
 - b) Entertainment Commerce
 - c) Electronic Commerce
 - d) All of the above
- 5) _____ are goods that can be delivered over a digital network.
 - a) Physical goods
 - b) Normal goods
 - c) Logical goods
 - d) Digital goods
- 6) _____ electronic commerce involves retailing products and services to individual shoppers.
 - a) Business-to-Consumer (B2C)
 - b) Business-to-Business (B2B)
 - c) Consumer-to-Consumer (C2C)
 - d) All of the above
- 7) In _____ mobile phones and handhelds are being used for mobile bill payment, banking and trading.
 - a) E-Commerce
 - b) M-Commerce
 - c) Both
 - d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- What is new in management information systems?
- How information systems are transforming Business?
- How information systems impact on organizations?
- What are the challenges posed by strategic information systems?
- Elaborate relationship among ethical, social, political issues in an information society.

Q.3 Attempt Any Two. 16

- Describe organizations and its features in detail.
- Describe tools and technologies used for collaboration and social business.
- Elaborate challenges to the protection individual privacy and intellectual property.

Section – II

Q.4 Attempt Any Three. 12

- Describe components of IT Infrastructure.
- What are the major capabilities of database management systems?
- Describe different tools of Security Management.
- What are the different features of e-commerce?
- Describe auditing in IT Security.

Q.5 Attempt Any Two. 16

- Describe different types of networks.
- What are the contemporary software platform trends used in IT infrastructure?
- Describe role of M-commerce in business & its applications.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) E-Commerce stands for _____.
 a) Electrical Commerce b) Entertainment Commerce
 c) Electronic Commerce d) All of the above
- 2) _____ are goods that can be delivered over a digital network.
 a) Physical goods b) Normal goods
 c) Logical goods d) Digital goods
- 3) _____ electronic commerce involves retailing products and services to individual shoppers.
 a) Business-to-Consumer (B2C)
 b) Business-to-Business (B2B)
 c) Consumer-to-Consumer (C2C)
 d) All of the above
- 4) In _____ mobile phones and handhelds are being used for mobile bill payment, banking and trading.
 a) E-Commerce b) M-Commerce
 c) Both d) None of these
- 5) Following is one of the components of MIS _____.
 a) management b) procedure
 c) outcome d) analysis
- 6) The back bone of any organization is _____.
 a) employee b) information
 c) management d) capital
- 7) An _____ is a stable, formal social structure that takes resource from the environment and processes them to produce outputs.
 a) Union b) Association
 c) Organization d) None of these
- 8) _____ are also called as standard operating procedure in an organization.
 a) Politics b) Culture
 c) Management d) Routines

- 9) _____ refers to the principles of right and wrong that individuals, acting as free moral agents, use to make choice to guide their behaviours.
- a) Ethics
 - b) Human Rights
 - c) Laws
 - d) Obligations
- 10) _____ can take information about people from many disparate resources such as employee applications, telephone records, customer listing.
- a) NOVA
 - b) NORA
 - c) NOPA
 - d) NOSA
- 11) In IT infrastructure consists of a set of _____ and software applications that are required to operate the entire enterprise.
- a) Perceptual devices
 - b) Logical devices
 - c) Physical devices
 - d) Virtual devices
- 12) Cloud computing services consists of _____ type of services.
- a) IaaS
 - b) SaaS
 - c) PaaS
 - d) All of the options
- 13) _____ platforms include hardware, software and management services to support a firm's website including web hosting services, routers and or cabling and wireless equipments.
- a) Internet
 - b) System management
 - c) Data management
 - d) Mainframe
- 14) Linux Perhaps the most well-known _____ software is Linux, an operating system related to Unix.
- a) close source
 - b) open source
 - c) system
 - d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) What is new in management information systems?
 - b) How information systems are transforming Business?
 - c) How information systems impact on organizations?
 - d) What are the challenges posed by strategic information systems?
 - e) Elaborate relationship among ethical, social, political issues in an information society.

- Q.3 Attempt Any Two. 16**
- a) Describe organizations and its features in detail.
 - b) Describe tools and technologies used for collaboration and social business.
 - c) Elaborate challenges to the protection individual privacy and intellectual property.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Describe components of IT Infrastructure.
 - b) What are the major capabilities of database management systems?
 - c) Describe different tools of Security Management.
 - d) What are the different features of e-commerce?
 - e) Describe auditing in IT Security.

- Q.5 Attempt Any Two. 16**
- a) Describe different types of networks.
 - b) What are the contemporary software platform trends used in IT infrastructure?
 - c) Describe role of M-commerce in business & its applications.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ can take information about people from many disparate resources such as employee applications, telephone records, customer listing.
 - a) NOVA
 - b) NORA
 - c) NOPA
 - d) NOSA
- 2) In IT infrastructure consists of a set of _____ and software applications that are required to operate the entire enterprise.
 - a) Perceptual devices
 - b) Logical devices
 - c) Physical devices
 - d) Virtual devices
- 3) Cloud computing services consists of _____ type of services.
 - a) IaaS
 - b) SaaS
 - c) PaaS
 - d) All of the options
- 4) _____ platforms include hardware, software and management services to support a firm's website including web hosting services, routers and or cabling and wireless equipments.
 - a) Internet
 - b) System management
 - c) Data management
 - d) Mainframe
- 5) Linux Perhaps the most well-known _____ software is Linux, an operating system related to Unix.
 - a) close source
 - b) open source
 - c) system
 - d) None of these
- 6) E-Commerce stands for _____.
 - a) Electrical Commerce
 - b) Entertainment Commerce
 - c) Electronic Commerce
 - d) All of the above
- 7) _____ are goods that can be delivered over a digital network.
 - a) Physical goods
 - b) Normal goods
 - c) Logical goods
 - d) Digital goods

- 8) _____ electronic commerce involves retailing products and services to individual shoppers.
- a) Business-to-Consumer (B2C)
 - b) Business-to-Business (B2B)
 - c) Consumer-to-Consumer (C2C)
 - d) All of the above
- 9) In _____ mobile phones and handhelds are being used for mobile bill payment, banking and trading.
- a) E-Commerce
 - b) M-Commerce
 - c) Both
 - d) None of these
- 10) Following is one of the components of MIS _____.
- a) management
 - b) procedure
 - c) outcome
 - d) analysis
- 11) The back bone of any organization is _____.
- a) employee
 - b) information
 - c) management
 - d) capital
- 12) An _____ is a stable, formal social structure that takes resource from the environment and processes them to produce outputs.
- a) Union
 - b) Association
 - c) Organization
 - d) None of these
- 13) _____ are also called as standard operating procedure in an organization.
- a) Politics
 - b) Culture
 - c) Management
 - d) Routines
- 14) _____ refers to the principles of right and wrong that individuals, acting as free moral agents, use to make choice to guide their behaviours.
- a) Ethics
 - b) Human Rights
 - c) Laws
 - d) Obligations

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Management Information System (197043801)**

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) What is new in management information systems?
 - b) How information systems are transforming Business?
 - c) How information systems impact on organizations?
 - d) What are the challenges posed by strategic information systems?
 - e) Elaborate relationship among ethical, social, political issues in an information society.

- Q.3 Attempt Any Two. 16**
- a) Describe organizations and its features in detail.
 - b) Describe tools and technologies used for collaboration and social business.
 - c) Elaborate challenges to the protection individual privacy and intellectual property.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Describe components of IT Infrastructure.
 - b) What are the major capabilities of database management systems?
 - c) Describe different tools of Security Management.
 - d) What are the different features of e-commerce?
 - e) Describe auditing in IT Security.

- Q.5 Attempt Any Two. 16**
- a) Describe different types of networks.
 - b) What are the contemporary software platform trends used in IT infrastructure?
 - c) Describe role of M-commerce in business & its applications.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) The DES Algorithm Cipher System consists of _____ rounds (iterations) each with a round key.

a) 12	b) 18
c) 9	d) 6
- 2) What is $11 \pmod 7$ and $-11 \pmod 7$?

a) 4 and 5	b) 4 and 4
c) 5 and 3	d) 4 and -4
- 3) Another name for Message authentication codes is _____.

a) cryptographic codebreak	b) cryptographic code sum
c) cryptographic checksum	d) cryptographic check break
- 4) DES follows

a) Hash Algorithm	b) Caesars Cipher
c) Feistel Cipher Structure	d) SP Networks
- 5) In RSA, $\Phi(n) =$ _____ in terms of p and q

a) $(p)/(q)$	b) $(p)(q)$
c) $(p-1)(q-1)$	d) $(p+1)(q+1)$
- 6) Caesar Cipher is an example of _____.

a) Poly-alphabetic Cipher	b) Mono-alphabetic Cipher
c) Multi-alphabetic Cipher	d) Bi-alphabetic Cipher
- 7) Which of the following is not a type of symmetric-key cryptography technique?

a) Caesar cipher	b) Data encryption standard (des)
c) Diffie hellman cipher	d) Playfair cipher

Seat No.	
----------	--

Set

P

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer any three** **12**
- a) What is symmetric key cryptography? Explain Fiestel cipher structure.
 - b) Explain RSA algorithm and Perform encryption and decryption using RSA with $p=7$, $q=11$, $e=7$, $m=9$
 - c) Explain Message Authentication code in detail with diagram.
 - d) Illustrate the working of Digital Signature standard with diagram.
- Q.3 Attempt any one question** **08**
- a) What are the principles of Public key Cryptosystem in Information Security? Explain Diffie-Hellman key exchange with example.
 - b) What is hash function? What is difference between hash code and MAC? State requirements for hash function.
- Q.4** Explain the working of DES with neat diagram. **08**

Section – II

- Q.5 Attempt any Three questions** **12**
- a) What is distributed consensus? Explain proof of stake in detail.
 - b) What is mean by Email security? Explain PGP.
 - c) What do you mean by blockchain? Explain Blockchain Merkle Tree.
 - d) What is cyber crime? explain ways to investigate cyber crime.
- Q.6 Answer any One** **08**
- a) What is blockchain Mining? Explain it in detail.
 - b) What are the cyber security standards? Explain in detail any four.
- Q.7** What is IP security? Explain IP security Architecture in detail. **08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options.

14

- 1) In tunnel mode, IPsec protects the _____.
 - a) Entire IP packet
 - b) IP header
 - c) IP payload
 - d) IP trailer
- 2) Which component is included in IP security?
 - a) Authentication Header (AH)
 - b) Encapsulating Security Payload (ESP)
 - c) Internet Key Exchange (IKE)
 - d) All of the mentioned
- 3) Pretty good privacy (PGP) is used in _____.
 - a) Browser security
 - b) Email security
 - c) FTP security
 - d) WiFi security
- 4) What does a block in a Blockchain have?
 - a) Header & Digital ledger
 - b) Bitcoins & Input
 - c) Transactions & Bitcoins
 - d) Header & Transaction
- 5) _____ receive verify, gather and execute transactions.
 - a) Miner nodes
 - b) Smart Contract
 - c) Light wallets
 - d) Ethereum full node
- 6) What is Blockchain?
 - a) A currency
 - b) A ledger
 - c) A type of currency
 - d) A distributed ledger on a peer-to-peer network
- 7) IPsec is designed to provide security at the _____.
 - a) Transport layer
 - b) Network layer
 - c) Application layer
 - d) Session layer
- 8) The DES Algorithm Cipher System consists of _____ rounds (iterations) each with a round key.
 - a) 12
 - b) 18
 - c) 9
 - d) 6

- 9) What is $11 \bmod 7$ and $-11 \bmod 7$?
a) 4 and 5
b) 4 and 4
c) 5 and 3
d) 4 and -4
- 10) Another name for Message authentication codes is _____.
a) cryptographic codebreak
b) cryptographic code sum
c) cryptographic checksum
d) cryptographic check break
- 11) DES follows
a) Hash Algorithm
b) Caesars Cipher
c) Feistel Cipher Structure
d) SP Networks
- 12) In RSA, $\Phi(n) =$ _____ in terms of p and q
a) $(p)/(q)$
b) $(p)(q)$
c) $(p-1)(q-1)$
d) $(p+1)(q+1)$
- 13) Caesar Cipher is an example of _____.
a) Poly-alphabetic Cipher
b) Mono-alphabetic Cipher
c) Multi-alphabetic Cipher
d) Bi-alphabetic Cipher
- 14) Which of the following is not a type of symmetric-key cryptography technique?
a) Caesar cipher
b) Data encryption standard (des)
c) Diffie hellman cipher
d) Playfair cipher

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer any three** **12**
- a) What is symmetric key cryptography? Explain Fiestel cipher structure.
 - b) Explain RSA algorithm and Perform encryption and decryption using RSA with $p=7$, $q=11$, $e=7$, $m=9$
 - c) Explain Message Authentication code in detail with diagram.
 - d) Illustrate the working of Digital Signature standard with diagram.
- Q.3 Attempt any one question** **08**
- a) What are the principles of Public key Cryptosystem in Information Security? Explain Diffie-Hellman key exchange with example.
 - b) What is hash function? What is difference between hash code and MAC? State requirements for hash function.
- Q.4** Explain the working of DES with neat diagram. **08**

Section – II

- Q.5 Attempt any Three questions** **12**
- a) What is distributed consensus? Explain proof of stake in detail.
 - b) What is mean by Email security? Explain PGP.
 - c) What do you mean by blockchain? Explain Blockchain Merkle Tree.
 - d) What is cyber crime? explain ways to investigate cyber crime.
- Q.6 Answer any One** **08**
- a) What is blockchain Mining? Explain it in detail.
 - b) What are the cyber security standards? Explain in detail any four.
- Q.7** What is IP security? Explain IP security Architecture in detail. **08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) What does a block in a Blockchain have?
 - a) Header & Digital ledger
 - b) Bitcoins & Input
 - c) Transactions & Bitcoins
 - d) Header & Transaction
- 2) _____ receive verify, gather and execute transactions.
 - a) Miner nodes
 - b) Smart Contract
 - c) Light wallets
 - d) Ethereum full node
- 3) What is Blockchain?
 - a) A currency
 - b) A ledger
 - c) A type of currency
 - d) A distributed ledger on a peer-to-peer network
- 4) IPSec is designed to provide security at the _____.
 - a) Transport layer
 - b) Network layer
 - c) Application layer
 - d) Session layer
- 5) The DES Algorithm Cipher System consists of _____ rounds (iterations) each with a round key.
 - a) 12
 - b) 18
 - c) 9
 - d) 6
- 6) What is $11 \bmod 7$ and $-11 \bmod 7$?
 - a) 4 and 5
 - b) 4 and 4
 - c) 5 and 3
 - d) 4 and -4
- 7) Another name for Message authentication codes is _____.
 - a) cryptographic codebreak
 - b) cryptographic code sum
 - c) cryptographic checksum
 - d) cryptographic check break
- 8) DES follows
 - a) Hash Algorithm
 - b) Caesars Cipher
 - c) Feistel Cipher Structure
 - d) SP Networks

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer any three** **12**
- a) What is symmetric key cryptography? Explain Fiestel cipher structure.
 - b) Explain RSA algorithm and Perform encryption and decryption using RSA with $p=7$, $q=11$, $e=7$, $m=9$
 - c) Explain Message Authentication code in detail with diagram.
 - d) Illustrate the working of Digital Signature standard with diagram.
- Q.3 Attempt any one question** **08**
- a) What are the principles of Public key Cryptosystem in Information Security? Explain Diffie-Hellman key exchange with example.
 - b) What is hash function? What is difference between hash code and MAC? State requirements for hash function.
- Q.4** Explain the working of DES with neat diagram. **08**

Section – II

- Q.5 Attempt any Three questions** **12**
- a) What is distributed consensus? Explain proof of stake in detail.
 - b) What is mean by Email security? Explain PGP.
 - c) What do you mean by blockchain? Explain Blockchain Merkle Tree.
 - d) What is cyber crime? explain ways to investigate cyber crime.
- Q.6 Answer any One** **08**
- a) What is blockchain Mining? Explain it in detail.
 - b) What are the cyber security standards? Explain in detail any four.
- Q.7** What is IP security? Explain IP security Architecture in detail. **08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options.

14

- 1) Caesar Cipher is an example of _____.
 - a) Poly-alphabetic Cipher
 - b) Mono-alphabetic Cipher
 - c) Multi-alphabetic Cipher
 - d) Bi-alphabetic Cipher
- 2) Which of the following is not a type of symmetric-key cryptography technique?
 - a) Caesar cipher
 - b) Data encryption standard (des)
 - c) Diffie hellman cipher
 - d) Playfair cipher
- 3) In tunnel mode, IPSec protects the _____.
 - a) Entire IP packet
 - b) IP header
 - c) IP payload
 - d) IP trailer
- 4) Which component is included in IP security?
 - a) Authentication Header (AH)
 - b) Encapsulating Security Payload (ESP)
 - c) Internet Key Exchange (IKE)
 - d) All of the mentioned
- 5) Pretty good privacy (PGP) is used in _____.
 - a) Browser security
 - b) Email security
 - c) FTP security
 - d) WiFi security
- 6) What does a block in a Blockchain have?
 - a) Header & Digital ledger
 - b) Bitcoins & Input
 - c) Transactions & Bitcoins
 - d) Header & Transaction
- 7) _____ receive verify, gather and execute transactions.
 - a) Miner nodes
 - b) Smart Contract
 - c) Light wallets
 - d) Ethereum full node
- 8) What is Blockchain?
 - a) A currency
 - b) A ledger
 - c) A type of currency
 - d) A distributed ledger on a peer-to-peer network

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Information & Cyber Security (197043802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer any three** **12**
- a) What is symmetric key cryptography? Explain Fiestel cipher structure.
 - b) Explain RSA algorithm and Perform encryption and decryption using RSA with $p=7$, $q=11$, $e=7$, $m=9$
 - c) Explain Message Authentication code in detail with diagram.
 - d) Illustrate the working of Digital Signature standard with diagram.
- Q.3 Attempt any one question** **08**
- a) What are the principles of Public key Cryptosystem in Information Security? Explain Diffie-Hellman key exchange with example.
 - b) What is hash function? What is difference between hash code and MAC? State requirements for hash function.
- Q.4** Explain the working of DES with neat diagram. **08**

Section – II

- Q.5 Attempt any Three questions** **12**
- a) What is distributed consensus? Explain proof of stake in detail.
 - b) What is mean by Email security? Explain PGP.
 - c) What do you mean by blockchain? Explain Blockchain Merkle Tree.
 - d) What is cyber crime? explain ways to investigate cyber crime.
- Q.6 Answer any One** **08**
- a) What is blockchain Mining? Explain it in detail.
 - b) What are the cyber security standards? Explain in detail any four.
- Q.7** What is IP security? Explain IP security Architecture in detail. **08**

Seat No.	
----------	--

**Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)**

Day & Date: Saturday 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives.

14

- 1) _____ characteristic of data explains the spikes in data.
 - a) Veracity
 - b) Validity
 - c) Variability
 - d) Volatility
- 2) Point out the correct statement.
 - a) Hadoop do need specialized hardware to process the data
 - b) Hadoop 2.0 allows live stream processing of real-time data
 - c) In the Hadoop programming framework output files are divided into lines or records
 - d) None of the mentioned
- 3) Hadoop is a framework that works with a variety of related tools. Common cohorts include _____.
 - a) MapReduce, Hive and HBase
 - b) MapReduce, MySQL and Google Apps
 - c) MapReduce, Hummer and Iguana
 - d) MapReduce, Heron and Trumpet
- 4) In Apache Cassandra, there is master-client architecture.
 - a) True
 - b) False
- 5) Consider the following statements:

Statement 1: The Job Tracker is hosted inside the master and it receives the job execution request from the client.

Statement 2: Task tracker is the MapReduce component on the slave machine as there are multiple slave machines.

 - a) Only statement 1 is true
 - b) Only statement 2 is true
 - c) Both statements are true
 - d) Both statements are false
- 6) The number of maps in MapReduce is usually driven by the total size of _____.
 - a) Inputs
 - b) Outputs
 - c) Tasks
 - d) None of the mentioned

- 7) MongoDB adheres to _____ and _____ traits of CAP theorem.
- Consistency and Availability
 - Consistency and Partition
 - Availability and Partition
 - None of these
- 8) Consider the pseudo-code for MapReduce's WordCount example (not shown here). Let's now assume that you want to determine the frequency of phrases consisting of 3 words each instead of determining the frequency of single words. Which part of the (pseudo-)code do you need to adapt?
- Only map()
 - Only reduce()
 - map() and reduce()
 - The code does not have to be changed
- 9) Which of the following is NOT a property of Cassandra?
- ACID operations
 - Decentralized deployments
 - Simple Transactions
 - Supports every type of data
- 10) Which of the following command is correct when we want to fetch documents from a collection for "only those employees whose salary is either 8500 or 10000"?
- `db.employees.find.sort({"salary":{"$in":[8500,1000]}})`
 - `db.employees.find({"salary":{"$in":[8500,1000]}})`
 - `db.employees.find({"salary":{"$in:[8500,1000]}})`
 - `db.employees.find({"salary":{"$in:{8500,1000}}})`
- 11) _____ is Data warehousing tool.
- Jaspersoft studio
 - Cassandra
 - Pig
 - Hive
- 12) The interactive mode of Pig is _____.
- CQLSH
 - HQL
 - GRUNT
 - CDBSH
- 13) Hive is used to query _____ data built on top of hadoop.
- Unstructured data
 - Structured data
 - Semi-structured
 - Any type of data
- 14) Apache Pig is _____.
- a high-level data flow tool
 - a low-level data processing tool
 - a data warehousing tool
 - a report generation tool

Seat No.	
----------	--

Set **P**

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three of the following questions. 12

- a) Categorize the following words into structured, unstructured and semi-structured category
 Email, MS Access, Images, Database, chat conversations, Facebook, Videos, XML, Twitter msg, OLTP systems.
- b) State CAP theorem. Define three terminologies of CAP.
- c) Explain In-Memory Analytics and In-Database processing.
- d) Demonstrate Anatomy of File-write operation in Hadoop with diagram.
- e) Place the following into basket of SQL and NOSQL:
 Relational, Distributed, Vertically scalable, ACID properties, horizontal scaling, CouchDB, JSON data, Pre-defined schema, MySQL, Avoids Join operations

Q.3 Attempt any One. 08

- a) With diagram explain the Big data Stack in detail.
- b) Explain the MapReduce programming workflow with diagram.

Q.4 What is Big Data Analytics? Explain all the characteristics of Big Data. 08

Section – II

Q.5 Attempt any Three of the following questions. 12

- a) List four important differences between RDBMS and Mongo DB.
- b) Write the queries for the following in MongoDB.
 - a) Create the collection "**accounts**" with documents having "Acc_id", "Acc_bal" and "Acc_type" Acc_type is 'S' for saving type and 'C' for current type accounts
 - b) Group on "Acc_id" and compute the average of the "Acc_bal" and determine the max "Acc_bal" for each group.
- c) What is KEYSPACE in Cassandra? Explain with example.
- d) Illustrate the use of important data types with example in Apache Pig: bytearray, tuple, bag and map.
- e) Demonstrate the use of following operators in Pig Latin with example:
 - a) LOAD
 - b) ORDER BY
 - c) FILTER
 - d) UNION

Q.6 Attempt any One.

08

- a) Explain replication, auto sharding, updating information In-place and implementation of cursor in MongoDB.
- b) List & explain the features of Cassandra.

Q.7 Draw the architecture of Hive and explain its components.

08

Seat No.	
----------	--

**Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)**

Day & Date: Saturday 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives.

14

- 1) Consider the pseudo-code for MapReduce's WordCount example (not shown here). Let's now assume that you want to determine the frequency of phrases consisting of 3 words each instead of determining the frequency of single words. Which part of the (pseudo-)code do you need to adapt?
 - a) Only map()
 - b) Only reduce()
 - c) map() and reduce()
 - d) The code does not have to be changed
- 2) Which of the following is NOT a property of Cassandra?
 - a) ACID operations
 - b) Decentralized deployments
 - c) Simple Transactions
 - d) Supports every type of data
- 3) Which of the following command is correct when we want to fetch documents from a collection for "only those employees whose salary is either 8500 or 10000"?
 - a) db.employees.find.sort({"salary":{"\$in:[8500,1000]}})
 - b) db.employees.find({"salary":{"\$in:[8500,1000]}})
 - c) db.employees.find({"salary":{"\$in:[8500,1000]}})
 - d) db.employees.find({"salary":{"\$in:{8500,1000}}})
- 4) _____ is Data warehousing tool.
 - a) Jaspersoft studio
 - b) Cassandra
 - c) Pig
 - d) Hive
- 5) The interactive mode of Pig is _____.
 - a) CQLSH
 - b) HQL
 - c) GRUNT
 - d) CDBSH
- 6) Hive is used to query _____ data built on top of hadoop.
 - a) Unstructured data
 - b) Structured data
 - c) Semi-structured
 - d) Any type of data

- 7) Apache Pig is _____.
a) a high-level data flow tool
b) a low-level data processing tool
c) a data warehousing tool
d) a report generation tool
- 8) _____ characteristic of data explains the spikes in data.
a) Veracity
b) Validity
c) Variability
d) Volatility
- 9) Point out the correct statement.
a) Hadoop do need specialized hardware to process the data
b) Hadoop 2.0 allows live stream processing of real-time data
c) In the Hadoop programming framework output files are divided into lines or records
d) None of the mentioned
- 10) Hadoop is a framework that works with a variety of related tools. Common cohorts include _____.
a) MapReduce, Hive and HBase
b) MapReduce, MySQL and Google Apps
c) MapReduce, Hummer and Iguana
d) MapReduce, Heron and Trumpet
- 11) In Apache Cassandra, there is master-client architecture.
a) True
b) False
- 12) Consider the following statements:
Statement 1: The Job Tracker is hosted inside the master and it receives the job execution request from the client.
Statement 2: Task tracker is the MapReduce component on the slave machine as there are multiple slave machines.
a) Only statement 1 is true
b) Only statement 2 is true
c) Both statements are true
d) Both statements are false
- 13) The number of maps in MapReduce is usually driven by the total size of _____.
a) Inputs
b) Outputs
c) Tasks
d) None of the mentioned
- 14) MongoDB adheres to _____ and _____ traits of CAP theorem.
a) Consistency and Availability
b) Consistency and Partition
c) Availability and Partition
d) None of these

Seat No.	
----------	--

Set **Q**

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three of the following questions. 12

- a) Categorize the following words into structured, unstructured and semi-structured category
 Email, MS Access, Images, Database, chat conversations, Facebook, Videos, XML, Twitter msg, OLTP systems.
- b) State CAP theorem. Define three terminologies of CAP.
- c) Explain In-Memory Analytics and In-Database processing.
- d) Demonstrate Anatomy of File-write operation in Hadoop with diagram.
- e) Place the following into basket of SQL and NOSQL:
 Relational, Distributed, Vertically scalable, ACID properties, horizontal scaling, CouchDB, JSON data, Pre-defined schema, MySQL, Avoids Join operations

Q.3 Attempt any One. 08

- a) With diagram explain the Big data Stack in detail.
- b) Explain the MapReduce programming workflow with diagram.

Q.4 What is Big Data Analytics? Explain all the characteristics of Big Data. 08

Section – II

Q.5 Attempt any Three of the following questions. 12

- a) List four important differences between RDBMS and Mongo DB.
- b) Write the queries for the following in MongoDB.
 - a) Create the collection "**accounts**" with documents having "Acc_id", "Acc_bal" and "Acc_type" Acc_type is 'S' for saving type and 'C' for current type accounts
 - b) Group on "Acc_id" and compute the average of the "Acc_bal" and determine the max "Acc_bal" for each group.
- c) What is KEYSPACE in Cassandra? Explain with example.
- d) Illustrate the use of important data types with example in Apache Pig: bytearray, tuple, bag and map.
- e) Demonstrate the use of following operators in Pig Latin with example:
 - a) LOAD
 - b) ORDER BY
 - c) FILTER
 - d) UNION

Q.6 Attempt any One.

- a) Explain replication, auto sharding, updating information In-place and implementation of cursor in MongoDB.
- b) List & explain the features of Cassandra.

Q.7 Draw the architecture of Hive and explain its components.

Seat No.	
----------	--

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives.

14

- 1) _____ is Data warehousing tool.

a) Jaspersoft studio	b) Cassandra
c) Pig	d) Hive
- 2) The interactive mode of Pig is _____.

a) CQLSH	b) HQL
c) GRUNT	d) CDBSH
- 3) Hive is used to query _____ data built on top of hadoop.

a) Unstructured data	b) Structured data
c) Semi-structured	d) Any type of data
- 4) Apache Pig is _____.

a) a high-level data flow tool
b) a low-level data processing tool
c) a data warehousing tool
d) a report generation tool
- 5) _____ characteristic of data explains the spikes in data.

a) Veracity	b) Validity
c) Variability	d) Volatility
- 6) Point out the correct statement.

a) Hadoop do need specialized hardware to process the data
b) Hadoop 2.0 allows live stream processing of real-time data
c) In the Hadoop programming framework output files are divided into lines or records
d) None of the mentioned
- 7) Hadoop is a framework that works with a variety of related tools. Common cohorts include _____.

a) MapReduce, Hive and HBase
b) MapReduce, MySQL and Google Apps
c) MapReduce, Hummer and Iguana
d) MapReduce, Heron and Trumpet

Seat No.	
----------	--

Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three of the following questions. 12

- a) Categorize the following words into structured, unstructured and semi-structured category
 Email, MS Access, Images, Database, chat conversations, Facebook, Videos, XML, Twitter msg, OLTP systems.
- b) State CAP theorem. Define three terminologies of CAP.
- c) Explain In-Memory Analytics and In-Database processing.
- d) Demonstrate Anatomy of File-write operation in Hadoop with diagram.
- e) Place the following into basket of SQL and NOSQL:
 Relational, Distributed, Vertically scalable, ACID properties, horizontal scaling, CouchDB, JSON data, Pre-defined schema, MySQL, Avoids Join operations

Q.3 Attempt any One. 08

- a) With diagram explain the Big data Stack in detail.
- b) Explain the MapReduce programming workflow with diagram.

Q.4 What is Big Data Analytics? Explain all the characteristics of Big Data. 08

Section – II

Q.5 Attempt any Three of the following questions. 12

- a) List four important differences between RDBMS and Mongo DB.
- b) Write the queries for the following in MongoDB.
 - a) Create the collection "**accounts**" with documents having "Acc_id", "Acc_bal" and "Acc_type" Acc_type is 'S' for saving type and 'C' for current type accounts
 - b) Group on "Acc_id" and compute the average of the "Acc_bal" and determine the max "Acc_bal" for each group.
- c) What is KEYSPACE in Cassandra? Explain with example.
- d) Illustrate the use of important data types with example in Apache Pig: bytearray, tuple, bag and map.
- e) Demonstrate the use of following operators in Pig Latin with example:
 - a) LOAD
 - b) ORDER BY
 - c) FILTER
 - d) UNION

Q.6 Attempt any One.

- a) Explain replication, auto sharding, updating information In-place and implementation of cursor in MongoDB.
- b) List & explain the features of Cassandra.

Q.7 Draw the architecture of Hive and explain its components.

Seat No.	
-----------------	--

Set S

**Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)**

Day & Date: Saturday 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives. 14

- 1) The number of maps in MapReduce is usually driven by the total size of _____.
 - a) Inputs
 - b) Outputs
 - c) Tasks
 - d) None of the mentioned
- 2) MongoDB adheres to _____ and _____ traits of CAP theorem.
 - a) Consistency and Availability
 - b) Consistency and Partition
 - c) Availability and Partition
 - d) None of these
- 3) Consider the pseudo-code for MapReduce's WordCount example (not shown here). Let's now assume that you want to determine the frequency of phrases consisting of 3 words each instead of determining the frequency of single words. Which part of the (pseudo-)code do you need to adapt?
 - a) Only map()
 - b) Only reduce()
 - c) map() and reduce()
 - d) The code does not have to be changed
- 4) Which of the following is NOT a property of Cassandra?
 - a) ACID operations
 - b) Decentralized deployments
 - c) Simple Transactions
 - d) Supports every type of data
- 5) Which of the following command is correct when we want to fetch documents from a collection for "only those employees whose salary is either 8500 or 10000"?
 - a) db.employees.find.sort({"salary":{"\$in:[8500,1000]}})
 - b) db.employees.find({"salary":{"\$in:[8500,1000]}})
 - c) db.employees.find({"salary":{"\$in:[8500,1000]}})
 - d) db.employees.find({"salary":{"\$in:[8500,1000]}})
- 6) _____ is Data warehousing tool.
 - a) Jasperoft studio
 - b) Cassandra
 - c) Pig
 - d) Hive

Seat No.	
----------	--

Set **S**

**Fourth Y (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Bigdata Analytics (197043805)**

Day & Date: Saturday 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three of the following questions. 12

- a) Categorize the following words into structured, unstructured and semi-structured category
Email, MS Access, Images, Database, chat conversations, Facebook, Videos, XML, Twitter msg, OLTP systems.
- b) State CAP theorem. Define three terminologies of CAP.
- c) Explain In-Memory Analytics and In-Database processing.
- d) Demonstrate Anatomy of File-write operation in Hadoop with diagram.
- e) Place the following into basket of SQL and NOSQL:
Relational, Distributed, Vertically scalable, ACID properties, horizontal scaling, CouchDB, JSON data, Pre-defined schema, MySQL, Avoids Join operations

Q.3 Attempt any One. 08

- a) With diagram explain the Big data Stack in detail.
- b) Explain the MapReduce programming workflow with diagram.

Q.4 What is Big Data Analytics? Explain all the characteristics of Big Data. 08

Section – II

Q.5 Attempt any Three of the following questions. 12

- a) List four important differences between RDBMS and Mongo DB.
- b) Write the queries for the following in MongoDB.
 - a) Create the collection "**accounts**" with documents having "Acc_id", "Acc_bal" and "Acc_type" Acc_type is 'S' for saving type and 'C' for current type accounts
 - b) Group on "Acc_id" and compute the average of the "Acc_bal" and determine the max "Acc_bal" for each group.
- c) What is KEYSPACE in Cassandra? Explain with example.
- d) Illustrate the use of important data types with example in Apache Pig: bytearray, tuple, bag and map.
- e) Demonstrate the use of following operators in Pig Latin with example:

a) LOAD	b) ORDER BY
c) FILTER	d) UNION

Q.6 Attempt any One.

- a) Explain replication, auto sharding, updating information In-place and implementation of cursor in MongoDB.
- b) List & explain the features of Cassandra.

Q.7 Draw the architecture of Hive and explain its components.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions (if necessary and state them clearly).

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct Answer.

14

- 1) The Bag-of-Words approach _____.
 - a) keeps word order, keeps word multiplicity
 - b) keeps word order, disregards word multiplicity
 - c) disregards word order, disregards word multiplicity
 - d) disregards word order, keeps word multiplicity
- 2) Which is a model of measuring the incidence of known words?
 - a) A low weight in TF-IDF
 - b) A high weight in TF-IDF
 - c) A corpus
 - d) A bag of words
- 3) What is Coreference Resolution?
 - a) Anaphora Resolution
 - b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
 - c) All of the mentioned
 - d) None of the mentioned
- 4) Which function would you use to retrieve the list of unique words?
 - a) fit_tranform()
 - b) CountVectorizer()
 - c) get_feature_names()
 - d) download()
- 5) What is Morphological Segmentation?
 - a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned
- 6) Which is the most useful metric from VADER for sentiment analysis?
 - a) Negative
 - b) Positivity
 - c) Intensity
 - d) Compound
- 7) Which are python libraries used in NLP?
 - a) pandas
 - b) spacy
 - c) nltk
 - d) All of above

- 8) Which step is the process of breaking down documents into smaller units of analysis?
- a) Ngrams
 - b) Tokenization
 - c) Stopwords
 - d) Corpus
- 9) WordNet refers to ____.
- a) A machine-readable thesaurus, and aspects of a dictionary
 - b) A hierarchically organized lexical database
 - c) Is a lexical database of semantic relations between words
 - d) All of above
- 10) Which are included in named entity recognition?
- a) Currency
 - b) Time and dates
 - c) Nouns
 - d) All of above
- 11) What are the Challenges in Word Sense Disambiguation (WSD)? Tick which is (FALSE) from the statements given below.
- a) Completely different algorithm might be needed for different applications
 - b) To decide the sense of the word because different senses can be very closely related
 - c) The problem of Inter-judge variance as the WSD systems are generally tested by having their results on a task compared against the task of human beings
 - d) Words can be easily divided into discrete sub-meanings
- 12) How do we get from NLP text analysis to stock price correlation?
- a) Convert parts of speech to categorical variables
 - b) Transform some NLP results into features
 - c) Recognize some named entities
 - d) All of above
- 13) NLP can be useful for ____.
- a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 14) Identify Semantic role or participant - **agent** from the below sentence.
"The boy kicked the ball"
- a) the boy
 - b) kicked
 - c) the
 - d) the ball

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)**

Day & Date: Saturday 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Make suitable assumptions (if necessary and state them clearly).

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Natural Language Processing?
 - b) Differentiate between Machine Learning and NLP
 - c) Explain Arg-Max Computation with suitable example.
 - d) What do you mean by metaphre in NLP? Discuss their uses.
 - e) Write a short note on WordNet.
- Q.3 Attempt any One** **06**
- a) What is Morphology? Explain Morphology paradigm, Morphology classes with example.
 - b) Explain Semantic Roles with example.
- Q.4 Explain Word Sense Disambiguation (WSD) in detail.** **06**

Section – II

- Q.5 Attempt any Four.** **16**
- a) Explain Top-dawn parsing.
 - b) Explain Sentiment Analysis with example.
 - c) Define the term Precision, Recall, F-Score.
 - d) What do you mean by Scope Ambiguity and Attachment Ambiguity resolution?
 - e) Explain Text Entailment with example.
- Q.6 Attempt any One** **06**
- a) Explain HMM in detail.
 - b) Explain Viterbi algorithm.
- Q.7 Enlist applications of NLP. Explain any one in detail.** **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions (if necessary and state them clearly).

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct Answer.

14

- 1) Which step is the process of breaking down documents into smaller units of analysis?
 - a) Ngrams
 - b) Tokenization
 - c) Stopwords
 - d) Corpus
- 2) WordNet refers to _____.
 - a) A machine-readable thesaurus, and aspects of a dictionary
 - b) A hierarchically organized lexical database
 - c) Is a lexical database of semantic relations between words
 - d) All of above
- 3) Which are included in named entity recognition?
 - a) Currency
 - b) Time and dates
 - c) Nouns
 - d) All of above
- 4) What are the Challenges in Word Sense Disambiguation (WSD)? Tick which is (FALSE) from the statements given below.
 - a) Completely different algorithm might be needed for different applications
 - b) To decide the sense of the word because different senses can be very closely related
 - c) The problem of Inter-judge variance as the WSD systems are generally tested by having their results on a task compared against the task of human beings
 - d) Words can be easily divided into discrete sub-meanings
- 5) How do we get from NLP text analysis to stock price correlation?
 - a) Convert parts of speech to categorical variables
 - b) Transform some NLP results into features
 - c) Recognize some named entities
 - d) All of above

- 6) NLP can be useful for _____
- a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 7) Identify Semantic role or participant - **agent** from the below sentence.
"The boy kicked the ball"
- a) the boy
 - b) kicked
 - c) the
 - d) the ball
- 8) The Bag-of-Words approach _____.
- a) keeps word order, keeps word multiplicity
 - b) keeps word order, disregards word multiplicity
 - c) disregards word order, disregards word multiplicity
 - d) disregards word order, keeps word multiplicity
- 9) Which is a model of measuring the incidence of known words?
- a) A low weight in TF-IDF
 - b) A high weight in TF-IDF
 - c) A corpus
 - d) A bag of words
- 10) What is Coreference Resolution?
- a) Anaphora Resolution
 - b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
 - c) All of the mentioned
 - d) None of the mentioned
- 11) Which function would you use to retrieve the list of unique words?
- a) `fit_transform()`
 - b) `CountVectorizer()`
 - c) `get_feature_names()`
 - d) `download()`
- 12) What is Morphological Segmentation?
- a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned
- 13) Which is the most useful metric from VADER for sentiment analysis?
- a) Negative
 - b) Positivity
 - c) Intensity
 - d) Compound
- 14) Which are python libraries used in NLP?
- a) pandas
 - b) spacy
 - c) nltk
 - d) All of above

Seat No.	
-------------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Make suitable assumptions (if necessary and state them clearly).

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Natural Language Processing?
 - b) Differentiate between Machine Learning and NLP
 - c) Explain Arg-Max Computation with suitable example.
 - d) What do you mean by metaphre in NLP? Discuss their uses.
 - e) Write a short note on WordNet.
- Q.3 Attempt any One** **06**
- a) What is Morphology? Explain Morphology paradigm, Morphology classes with example.
 - b) Explain Semantic Roles with example.
- Q.4 Explain Word Sense Disambiguation (WSD) in detail.** **06**

Section – II

- Q.5 Attempt any Four.** **16**
- a) Explain Top-dawn parsing.
 - b) Explain Sentiment Analysis with example.
 - c) Define the term Precision, Recall, F-Score.
 - d) What do you mean by Scope Ambiguity and Attachment Ambiguity resolution?
 - e) Explain Text Entailment with example.
- Q.6 Attempt any One** **06**
- a) Explain HMM in detail.
 - b) Explain Viterbi algorithm.
- Q.7 Enlist applications of NLP. Explain any one in detail.** **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Make suitable assumptions (if necessary and state them clearly).

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct Answer.

14

- 1) What are the Challenges in Word Sense Disambiguation (WSD)? Tick which is (FALSE) from the statements given below.
 - a) Completely different algorithm might be needed for different applications
 - b) To decide the sense of the word because different senses can be very closely related
 - c) The problem of Inter-judge variance as the WSD systems are generally tested by having their results on a task compared against the task of human beings
 - d) Words can be easily divided into discrete sub-meanings
- 2) How do we get from NLP text analysis to stock price correlation?
 - a) Convert parts of speech to categorical variables
 - b) Transform some NLP results into features
 - c) Recognize some named entities
 - d) All of above
- 3) NLP can be useful for _____.
 - a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 4) Identify Semantic role or participant - **agent** from the below sentence. "The boy kicked the ball"

a) the boy	b) kicked
c) the	d) the ball
- 5) The Bag-of-Words approach _____.
 - a) keeps word order, keeps word multiplicity
 - b) keeps word order, disregards word multiplicity
 - c) disregards word order, disregards word multiplicity
 - d) disregards word order, keeps word multiplicity

- 6) Which is a model of measuring the incidence of known words?
a) A low weight in TF-IDF b) A high weight in TF-IDF
c) A corpus d) A bag of words
- 7) What is Coreference Resolution?
a) Anaphora Resolution
b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
c) All of the mentioned
d) None of the mentioned
- 8) Which function would you use to retrieve the list of unique words?
a) fit_transform() b) CountVectorizer()
c) get_feature_names() d) download()
- 9) What is Morphological Segmentation?
a) Does Discourse Analysis
b) Separate words into individual morphemes and identify the class of the morphemes
c) Is an extension of propositional logic
d) None of the mentioned
- 10) Which is the most useful metric from VADER for sentiment analysis?
a) Negative b) Positivity
c) Intensity d) Compound
- 11) Which are python libraries used in NLP?
a) pandas b) spacy
c) nltk d) All of above
- 12) Which step is the process of breaking down documents into smaller units of analysis?
a) Ngrams b) Tokenization
c) Stopwords d) Corpus
- 13) WordNet refers to _____.
a) A machine-readable thesaurus, and aspects of a dictionary
b) A hierarchically organized lexical database
c) Is a lexical database of semantic relations between words
d) All of above
- 14) Which are included in named entity recognition?
a) Currency b) Time and dates
c) Nouns d) All of above

Seat No.	
-------------	--

Set

R

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Make suitable assumptions (if necessary and state them clearly).

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Natural Language Processing?
 - b) Differentiate between Machine Learning and NLP
 - c) Explain Arg-Max Computation with suitable example.
 - d) What do you mean by metaphre in NLP? Discuss their uses.
 - e) Write a short note on WordNet.
- Q.3 Attempt any One** **06**
- a) What is Morphology? Explain Morphology paradigm, Morphology classes with example.
 - b) Explain Semantic Roles with example.
- Q.4 Explain Word Sense Disambiguation (WSD) in detail.** **06**

Section – II

- Q.5 Attempt any Four.** **16**
- a) Explain Top-dawn parsing.
 - b) Explain Sentiment Analysis with example.
 - c) Define the term Precision, Recall, F-Score.
 - d) What do you mean by Scope Ambiguity and Attachment Ambiguity resolution?
 - e) Explain Text Entailment with example.
- Q.6 Attempt any One** **06**
- a) Explain HMM in detail.
 - b) Explain Viterbi algorithm.
- Q.7 Enlist applications of NLP. Explain any one in detail.** **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Make suitable assumptions (if necessary and state them clearly).

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct Answer.

14

- 1) Which is the most useful metric from VADER for sentiment analysis?
 - a) Negative
 - b) Positivity
 - c) Intensity
 - d) Compound
- 2) Which are python libraries used in NLP?
 - a) pandas
 - b) spacy
 - c) nltk
 - d) All of above
- 3) Which step is the process of breaking down documents into smaller units of analysis?
 - a) Ngrams
 - b) Tokenization
 - c) Stopwords
 - d) Corpus
- 4) WordNet refers to _____.
 - a) A machine-readable thesaurus, and aspects of a dictionary
 - b) A hierarchically organized lexical database
 - c) Is a lexical database of semantic relations between words
 - d) All of above
- 5) Which are included in named entity recognition?
 - a) Currency
 - b) Time and dates
 - c) Nouns
 - d) All of above
- 6) What are the Challenges in Word Sense Disambiguation (WSD)? Tick which is (FALSE) from the statements given below.
 - a) Completely different algorithm might be needed for different applications
 - b) To decide the sense of the word because different senses can be very closely related
 - c) The problem of Inter-judge variance as the WSD systems are generally tested by having their results on a task compared against the task of human beings
 - d) Words can be easily divided into discrete sub-meanings

- 7) How do we get from NLP text analysis to stock price correlation?
- a) Convert parts of speech to categorical variables
 - b) Transform some NLP results into features
 - c) Recognize some named entities
 - d) All of above
- 8) NLP can be useful for _____
- a) Automatic Text Summarization
 - b) Automatic Question-Answering Systems
 - c) Information Retrieval
 - d) All of the mentioned
- 9) Identify Semantic role or participant - **agent** from the below sentence.
"The boy kicked the ball"
- a) the boy
 - b) kicked
 - c) the
 - d) the ball
- 10) The Bag-of-Words approach _____.
- a) keeps word order, keeps word multiplicity
 - b) keeps word order, disregards word multiplicity
 - c) disregards word order, disregards word multiplicity
 - d) disregards word order, keeps word multiplicity
- 11) Which is a model of measuring the incidence of known words?
- a) A low weight in TF-IDF
 - b) A high weight in TF-IDF
 - c) A corpus
 - d) A bag of words
- 12) What is Coreference Resolution?
- a) Anaphora Resolution
 - b) Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities")
 - c) All of the mentioned
 - d) None of the mentioned
- 13) Which function would you use to retrieve the list of unique words?
- a) `fit_transform()`
 - b) `CountVectorizer()`
 - c) `get_feature_names()`
 - d) `download()`
- 14) What is Morphological Segmentation?
- a) Does Discourse Analysis
 - b) Separate words into individual morphemes and identify the class of the morphemes
 - c) Is an extension of propositional logic
 - d) None of the mentioned

Seat No.	
-------------	--

Set

S

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTAR SCIENCE & ENGINEERING
Natural Language Programming (197043806)

Day & Date: Saturday 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Make suitable assumptions (if necessary and state them clearly).

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Natural Language Processing?
 - b) Differentiate between Machine Learning and NLP
 - c) Explain Arg-Max Computation with suitable example.
 - d) What do you mean by metaphre in NLP? Discuss their uses.
 - e) Write a short note on WordNet.
- Q.3 Attempt any One** **06**
- a) What is Morphology? Explain Morphology paradigm, Morphology classes with example.
 - b) Explain Semantic Roles with example.
- Q.4 Explain Word Sense Disambiguation (WSD) in detail.** **06**

Section – II

- Q.5 Attempt any Four.** **16**
- a) Explain Top-dawn parsing.
 - b) Explain Sentiment Analysis with example.
 - c) Define the term Precision, Recall, F-Score.
 - d) What do you mean by Scope Ambiguity and Attachment Ambiguity resolution?
 - e) Explain Text Entailment with example.
- Q.6 Attempt any One** **06**
- a) Explain HMM in detail.
 - b) Explain Viterbi algorithm.
- Q.7 Enlist applications of NLP. Explain any one in detail.** **06**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following is not a type of cloud?

a) Private	b) Public
c) Protected	d) Hybrid
- 2) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?

a) Platform as a Service	b) Software as a Service
c) Application as a Service	d) Infrastructure as a Service
- 3) The term "hybrid cloud" refers to?
 - a) Private cloud
 - b) Public cloud
 - c) Combination of Public and Private cloud
 - d) None
- 4) Which of the following is an example of the cloud?

a) Amazon Web Services (AWS)	b) Dropbox
c) Cisco WebEx	d) All of the above
- 5) _____ is type 1 hypervisor.

a) KVM	b) Lynx Secure
c) Virtual Server 2005 R2	d) Wind River Simics
- 6) Which of the following are the features of cloud computing?

a) Security	b) Availability
c) Large Network Access	d) All of the mentioned
- 7) Data should be _____ and _____ in an _____ form for security purpose.

a) Transferred, stored, decrypted	b) Stored, encrypted, transferred
c) Transferred, stored, encrypted	d) None of these
- 8) Azure Storage plays the same role in Azure that _____ plays in Amazon Web Services.

a) S3	b) EC2
c) EC3	d) S2

- 9) Which one of the following cloud concepts is related to sharing and pooling the resources?
- a) Polymorphism
 - b) Virtualization
 - c) Abstraction
 - d) None of the mentioned
- 10) Point out the correct statement:
- a) A client can request access to a cloud service from any location
 - b) A cloud has multiple application instances and directs requests to an instance based on conditions
 - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
 - d) All of the mentioned
- 11) Which of the following software can be used to implement load balancing?
- a) Apache mod_balancer
 - b) Apache mod_proxy_balancer
 - c) F6's BigIP
 - d) All of the mentioned
- 12) Point out the wrong statement.
- a) Internet consumes roughly 1 percent of the world's total power
 - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
 - c) A client can provision computer resources without the need for interaction with cloud service provider personnel
 - d) None of the mentioned
- 13) Cloud computing is a _____ system and it is necessarily unidirectional in nature.
- a) stateless
 - b) stateful
 - c) reliable
 - d) all of the mentioned
- 14) Which of the following is an edge-storage or content-delivery system that caches data in different physical locations?
- a) Amazon Relational Database Service
 - b) Amazon Simple DB
 - c) Amazon Cloud front
 - d) Amazon Associates Web Services

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any Three. 12**
a) Define the term cloud computing. Discuss its history in brief.
b) Differentiate between public cloud and private cloud.
c) What is Private cloud? Explain characteristics of private cloud.
d) What are the benefits of Openstack?
- Q.3 Attempt any One. 08**
a) Give difference between Private Cloud deployment models-Cloudstack and Openstack.
b) Explain the components of Google Cloud Architecture.
- Q.4 Explain cloud service models with suitable diagram. 08**

Section – II

- Q.5 Attempt any Three. 12**
a) What are the challenges in Cloud Computing in terms of Application Security?
b) Explain insecure interfaces and APIs. Discuss shared technology issues.
c) Explain how cloud computing is useful in business environment.
d) Explain migration paths for cloud.
- Q.6 Attempt any One. 08**
a) How data loss or leakage occur in cloud computing. What are its remediations?
b) List and discuss various current issues of cloud computing leading to future research directions.
- Q.7 What are the selection criteria for cloud deployment? 08**

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) Azure Storage plays the same role in Azure that _____ plays in Amazon Web Services.

a) S3	b) EC2
c) EC3	d) S2
- 2) Which one of the following cloud concepts is related to sharing and pooling the resources?

a) Polymorphism	b) Virtualization
c) Abstraction	d) None of the mentioned
- 3) Point out the correct statement:
 - a) A client can request access to a cloud service from any location
 - b) A cloud has multiple application instances and directs requests to an instance based on conditions
 - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
 - d) All of the mentioned
- 4) Which of the following software can be used to implement load balancing?

a) Apache mod_balancer	b) Apache mod_proxy_balancer
c) F6's BigIP	d) All of the mentioned
- 5) Point out the wrong statement.
 - a) Internet consumes roughly 1 percent of the world's total power
 - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
 - c) A client can provision computer resources without the need for interaction with cloud service provider personnel
 - d) None of the mentioned
- 6) Cloud computing is a _____ system and it is necessarily unidirectional in nature.

a) stateless	b) stateful
c) reliable	d) all of the mentioned

- 7) Which of the following is an edge-storage or content-delivery system that caches data in different physical locations?
- a) Amazon Relational Database Service
 - b) Amazon Simple DB
 - c) Amazon Cloud front
 - d) Amazon Associates Web Services
- 8) Which of the following is not a type of cloud?
- a) Private
 - b) Public
 - c) Protected
 - d) Hybrid
- 9) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
- a) Platform as a Service
 - b) Software as a Service
 - c) Application as a Service
 - d) Infrastructure as a Service
- 10) The term "hybrid cloud" refers to?
- a) Private cloud
 - b) Public cloud
 - c) Combination of Public and Private cloud
 - d) None
- 11) Which of the following is an example of the cloud?
- a) Amazon Web Services (AWS)
 - b) Dropbox
 - c) Cisco WebEx
 - d) All of the above
- 12) _____ is type 1 hypervisor.
- a) KVM
 - b) Lynx Secure
 - c) Virtual Server 2005 R2
 - d) Wind River Simics
- 13) Which of the following are the features of cloud computing?
- a) Security
 - b) Availability
 - c) Large Network Access
 - d) All of the mentioned
- 14) Data should be _____ and _____ in an _____ form for security purpose.
- a) Transferred, stored, decrypted
 - b) Stored, encrypted, transferred
 - c) Transferred, stored, encrypted
 - d) None of these

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any Three. 12**
a) Define the term cloud computing. Discuss its history in brief.
b) Differentiate between public cloud and private cloud.
c) What is Private cloud? Explain characteristics of private cloud.
d) What are the benefits of Openstack?
- Q.3 Attempt any One. 08**
a) Give difference between Private Cloud deployment models-Cloudstack and Openstack.
b) Explain the components of Google Cloud Architecture.
- Q.4 Explain cloud service models with suitable diagram. 08**

Section – II

- Q.5 Attempt any Three. 12**
a) What are the challenges in Cloud Computing in terms of Application Security?
b) Explain insecure interfaces and APIs. Discuss shared technology issues.
c) Explain how cloud computing is useful in business environment.
d) Explain migration paths for cloud.
- Q.6 Attempt any One. 08**
a) How data loss or leakage occur in cloud computing. What are its remediations?
b) List and discuss various current issues of cloud computing leading to future research directions.
- Q.7 What are the selection criteria for cloud deployment? 08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following software can be used to implement load balancing?
 - a) Apache mod_balancer
 - b) Apache mod_proxy_balancer
 - c) F6's BigIP
 - d) All of the mentioned
- 2) Point out the wrong statement.
 - a) Internet consumes roughly 1 percent of the world's total power
 - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
 - c) A client can provision computer resources without the need for interaction with cloud service provider personnel
 - d) None of the mentioned
- 3) Cloud computing is a _____ system and it is necessarily unidirectional in nature.
 - a) stateless
 - b) stateful
 - c) reliable
 - d) all of the mentioned
- 4) Which of the following is an edge-storage or content-delivery system that caches data in different physical locations?
 - a) Amazon Relational Database Service
 - b) Amazon Simple DB
 - c) Amazon Cloud front
 - d) Amazon Associates Web Services
- 5) Which of the following is not a type of cloud?
 - a) Private
 - b) Public
 - c) Protected
 - d) Hybrid
- 6) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
 - a) Platform as a Service
 - b) Software as a Service
 - c) Application as a Service
 - d) Infrastructure as a Service

- 7) The term “hybrid cloud” refers to?
- a) Private cloud
 - b) Public cloud
 - c) Combination of Public and Private cloud
 - d) None
- 8) Which of the following is an example of the cloud?
- a) Amazon Web Services (AWS)
 - b) Dropbox
 - c) Cisco WebEx
 - d) All of the above
- 9) _____ is type 1 hypervisor.
- a) KVM
 - b) Lynx Secure
 - c) Virtual Server 2005 R2
 - d) Wind River Simics
- 10) Which of the following are the features of cloud computing?
- a) Security
 - b) Availability
 - c) Large Network Access
 - d) All of the mentioned
- 11) Data should be _____ and _____ in an _____ form for security purpose.
- a) Transferred, stored, decrypted
 - b) Stored, encrypted, transferred
 - c) Transferred, stored, encrypted
 - d) None of these
- 12) Azure Storage plays the same role in Azure that _____ plays in Amazon Web Services.
- a) S3
 - b) EC2
 - c) EC3
 - d) S2
- 13) Which one of the following cloud concepts is related to sharing and pooling the resources?
- a) Polymorphism
 - b) Virtualization
 - c) Abstraction
 - d) None of the mentioned
- 14) Point out the correct statement:
- a) A client can request access to a cloud service from any location
 - b) A cloud has multiple application instances and directs requests to an instance based on conditions
 - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
 - d) All of the mentioned

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any Three. 12**
a) Define the term cloud computing. Discuss its history in brief.
b) Differentiate between public cloud and private cloud.
c) What is Private cloud? Explain characteristics of private cloud.
d) What are the benefits of Openstack?
- Q.3 Attempt any One. 08**
a) Give difference between Private Cloud deployment models-Cloudstack and Openstack.
b) Explain the components of Google Cloud Architecture.
- Q.4 Explain cloud service models with suitable diagram. 08**

Section – II

- Q.5 Attempt any Three. 12**
a) What are the challenges in Cloud Computing in terms of Application Security?
b) Explain insecure interfaces and APIs. Discuss shared technology issues.
c) Explain how cloud computing is useful in business environment.
d) Explain migration paths for cloud.
- Q.6 Attempt any One. 08**
a) How data loss or leakage occur in cloud computing. What are its remediations?
b) List and discuss various current issues of cloud computing leading to future research directions.
- Q.7 What are the selection criteria for cloud deployment? 08**

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following are the features of cloud computing?
 - a) Security
 - b) Availability
 - c) Large Network Access
 - d) All of the mentioned
- 2) Data should be _____ and _____ in an _____ form for security purpose.
 - a) Transferred, stored, decrypted
 - b) Stored, encrypted, transferred
 - c) Transferred, stored, encrypted
 - d) None of these
- 3) Azure Storage plays the same role in Azure that _____ plays in Amazon Web Services.
 - a) S3
 - b) EC2
 - c) EC3
 - d) S2
- 4) Which one of the following cloud concepts is related to sharing and pooling the resources?
 - a) Polymorphism
 - b) Virtualization
 - c) Abstraction
 - d) None of the mentioned
- 5) Point out the correct statement:
 - a) A client can request access to a cloud service from any location
 - b) A cloud has multiple application instances and directs requests to an instance based on conditions
 - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
 - d) All of the mentioned
- 6) Which of the following software can be used to implement load balancing?
 - a) Apache mod_balancer
 - b) Apache mod_proxy_balancer
 - c) F6's BigIP
 - d) All of the mentioned

- 7) Point out the wrong statement.
- a) Internet consumes roughly 1 percent of the world's total power
 - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
 - c) A client can provision computer resources without the need for interaction with cloud service provider personnel
 - d) None of the mentioned
- 8) Cloud computing is a _____ system and it is necessarily unidirectional in nature.
- a) stateless
 - b) stateful
 - c) reliable
 - d) all of the mentioned
- 9) Which of the following is an edge-storage or content-delivery system that caches data in different physical locations?
- a) Amazon Relational Database Service
 - b) Amazon Simple DB
 - c) Amazon Cloud front
 - d) Amazon Associates Web Services
- 10) Which of the following is not a type of cloud?
- a) Private
 - b) Public
 - c) Protected
 - d) Hybrid
- 11) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
- a) Platform as a Service
 - b) Software as a Service
 - c) Application as a Service
 - d) Infrastructure as a Service
- 12) The term "hybrid cloud" refers to?
- a) Private cloud
 - b) Public cloud
 - c) Combination of Public and Private cloud
 - d) None
- 13) Which of the following is an example of the cloud?
- a) Amazon Web Services (AWS)
 - b) Dropbox
 - c) Cisco WebEx
 - d) All of the above
- 14) _____ is type 1 hypervisor.
- a) KVM
 - b) Lynx Secure
 - c) Virtual Server 2005 R2
 - d) Wind River Simics

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Cloud Computing (197043807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any Three. 12**
a) Define the term cloud computing. Discuss its history in brief.
b) Differentiate between public cloud and private cloud.
c) What is Private cloud? Explain characteristics of private cloud.
d) What are the benefits of Openstack?
- Q.3 Attempt any One. 08**
a) Give difference between Private Cloud deployment models-Cloudstack and Openstack.
b) Explain the components of Google Cloud Architecture.
- Q.4 Explain cloud service models with suitable diagram. 08**

Section – II

- Q.5 Attempt any Three. 12**
a) What are the challenges in Cloud Computing in terms of Application Security?
b) Explain insecure interfaces and APIs. Discuss shared technology issues.
c) Explain how cloud computing is useful in business environment.
d) Explain migration paths for cloud.
- Q.6 Attempt any One. 08**
a) How data loss or leakage occur in cloud computing. What are its remediations?
b) List and discuss various current issues of cloud computing leading to future research directions.
- Q.7 What are the selection criteria for cloud deployment? 08**

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is a recommended Model for Pattern Recognition in Unlabelled Data.
 - a) Shallow Neural Networks
 - b) Auto encoders
 - c) RNN
 - d) CNN
- 2) What is the method to overcome the Decay of Information through time in RNN known as?
 - a) Back Propagation
 - b) Gradient Descent
 - c) Activation
 - d) Gating
- 3) De-noising and Contractive are examples of _____.
 - a) Shallow Neural Networks
 - b) Auto encoders
 - c) Convolution Neural Networks
 - d) Recurrent Neural Networks
- 4) Auto encoders cannot be used for Dimensionality Reduction.
 - a) False
 - b) True
- 5) What will happen when we will increase the machine learning model complexity?
 - a) bias increases
 - b) bias decreases
 - c) variance increases
 - d) variance decreases
- 6) _____ is an example of hyper parameters
 - a) Learning rate
 - b) Loss function
 - c) Under-fitting
 - d) All a, b, c
- 7) What will happen to our machine learning model if the number of features is more than the number of data elements in our dataset?
 - a) It will be in under-fitting
 - b) It will not work
 - c) It will be in overfitting
 - d) It will not be affected

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four. 16**
- a) Write differences between LOOCV and K fold cross validation.
 - b) Explain architectural design.
 - c) Explain cost function in detail.
 - d) Enlist different deep learning software libraries.
 - e) What is regularization, explain its different method.
- Q.3 Attempt Any One. 06**
- a) Explain RNN and CNN in details.
 - b) Explain LSTM in details.
- Q.4 Attempt the following. 06**
- Explain any four activation function.

Section – II

- Q.5 Attempt Any Four. 16**
- a) Explain computer Vision.
 - b) Define Metric Learning, explain it in details.
 - c) Write different applications of auto encoder.
 - d) Explain RCNNs with Keras.
 - e) Explain the use of auto encoder in dimensionality reduction & classification.
- Q.6 Attempt Any One. 06**
- a) Explain transfer learning.
 - b) Explain Deep learning optimizers.
- Q.7 Attempt the following. 06**
- Explain SGD optimizer for CNNs.

Seat No.	
-----------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ computes the output volume by computing dot product between all filters and image patch.

a) Input Layer	b) Convolution Layer
c) Activation Function Layer	d) Pool Layer
- 2) _____ is a pooling operation that selects the maximum element from the region of the feature map covered by the filter.

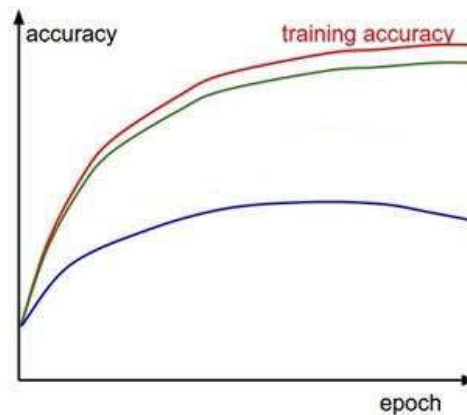
a) Max Pooling	b) Average Pooling
c) Global pooling	d) None of these
- 3) The rate at which cost changes with respect to weight or bias is called _____.

a) Derivative	b) Gradient
c) Rate of Change	d) Loss
- 4) Recurrent Neural Networks are best suited for Text Processing.

a) True	b) False
---------	----------
- 5) Which of the following functions can be used as an activation function in the output layer if we wish to predict the probabilities of n classes (p_1, p_2, \dots, p_k) such that sum of p over all n equals to 1?

a) Softmax	b) ReLu
c) Sigmoid	d) Tanh

- 6) The red curve below denotes training accuracy with respect to each epoch in a deep learning algorithm. Both the green and blue curves denote validation accuracy. Which of these indicate overfitting?



- a) Green Curve
b) Blue Curve
c) None
d) Red curve
- 7) What does LSTM stand for?
a) Long Short Term Memory
b) Least Squares Term Memory
c) Least Square Time Mean
d) Long Short Threshold Memory
- 8) _____ is a recommended Model for Pattern Recognition in Unlabelled Data.
a) Shallow Neural Networks
b) Auto encoders
c) RNN
d) CNN
- 9) What is the method to overcome the Decay of Information through time in RNN known as?
a) Back Propagation
b) Gradient Descent
c) Activation
d) Gating
- 10) De-noising and Contractive are examples of _____.
a) Shallow Neural Networks
b) Auto encoders
c) Convolution Neural Networks
d) Recurrent Neural Networks
- 11) Auto encoders cannot be used for Dimensionality Reduction.
a) False
b) True
- 12) What will happen when we will increase the machine learning model complexity?
a) bias increases
b) bias decreases
c) variance increases
d) variance decreases
- 13) _____ is an example of hyper parameters
a) Learning rate
b) Loss function
c) Under-fitting
d) All a, b, c
- 14) What will happen to our machine learning model if the number of features is more than the number of data elements in our dataset?
a) It will be in under-fitting
b) It will not work
c) It will be in overfitting
d) It will not be affected

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four.** **16**
- a) Write differences between LOOCV and K fold cross validation.
 - b) Explain architectural design.
 - c) Explain cost function in detail.
 - d) Enlist different deep learning software libraries.
 - e) What is regularization, explain its different method.
- Q.3 Attempt Any One.** **06**
- a) Explain RNN and CNN in details.
 - b) Explain LSTM in details.
- Q.4 Attempt the following.** **06**
- Explain any four activation function.

Section – II

- Q.5 Attempt Any Four.** **16**
- a) Explain computer Vision.
 - b) Define Metric Learning, explain it in details.
 - c) Write different applications of auto encoder.
 - d) Explain RCNNs with Keras.
 - e) Explain the use of auto encoder in dimensionality reduction & classification.
- Q.6 Attempt Any One.** **06**
- a) Explain transfer learning.
 - b) Explain Deep learning optimizers.
- Q.7 Attempt the following.** **06**
- Explain SGD optimizer for CNNs.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

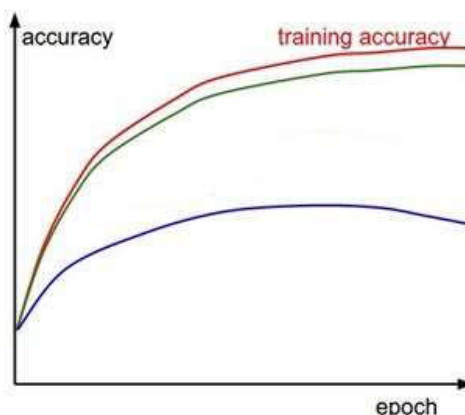
MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. **14**

- 1) Recurrent Neural Networks are best suited for Text Processing.
a) True b) False
- 2) Which of the following functions can be used as an activation function in the output layer if we wish to predict the probabilities of n classes (p_1, p_2, \dots, p_k) such that sum of p over all n equals to 1?
a) Softmax b) ReLU
c) Sigmoid d) Tanh
- 3) The red curve below denotes training accuracy with respect to each epoch in a deep learning algorithm. Both the green and blue curves denote validation accuracy. Which of these indicate overfitting?



- a) Green Curve b) Blue Curve
 - c) None d) Red curve
- 4) What does LSTM stand for?
a) Long Short Term Memory b) Least Squares Term Memory
c) Least Square Time Mean d) Long Short Threshold Memory
 - 5) _____ is a recommended Model for Pattern Recognition in Unlabelled Data.
a) Shallow Neural Networks b) Auto encoders
c) RNN d) CNN

- 6) What is the method to overcome the Decay of Information through time in RNN known as?
- a) Back Propagation
 - b) Gradient Descent
 - c) Activation
 - d) Gating
- 7) De-noising and Contractive are examples of _____.
- a) Shallow Neural Networks
 - b) Auto encoders
 - c) Convolution Neural Networks
 - d) Recurrent Neural Networks
- 8) Auto encoders cannot be used for Dimensionality Reduction.
- a) False
 - b) True
- 9) What will happen when we will increase the machine learning model complexity?
- a) bias increases
 - b) bias decreases
 - c) variance increases
 - d) variance decreases
- 10) _____ is an example of hyper parameters
- a) Learning rate
 - b) Loss function
 - c) Under-fitting
 - d) All a, b, c
- 11) What will happen to our machine learning model if the number of features is more than the number of data elements in our dataset?
- a) It will be in under-fitting
 - b) It will not work
 - c) It will be in overfitting
 - d) It will not be affected
- 12) _____ computes the output volume by computing dot product between all filters and image patch.
- a) Input Layer
 - b) Convolution Layer
 - c) Activation Function Layer
 - d) Pool Layer
- 13) _____ is a pooling operation that selects the maximum element from the region of the feature map covered by the filter.
- a) Max Pooling
 - b) Average Pooling
 - c) Global pooling
 - d) None of these
- 14) The rate at which cost changes with respect to weight or bias is called _____.
- a) Derivative
 - b) Gradient
 - c) Rate of Change
 - d) Loss

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four. 16**
- a) Write differences between LOOCV and K fold cross validation.
 - b) Explain architectural design.
 - c) Explain cost function in detail.
 - d) Enlist different deep learning software libraries.
 - e) What is regularization, explain its different method.
- Q.3 Attempt Any One. 06**
- a) Explain RNN and CNN in details.
 - b) Explain LSTM in details.
- Q.4 Attempt the following. 06**
- Explain any four activation function.

Section – II

- Q.5 Attempt Any Four. 16**
- a) Explain computer Vision.
 - b) Define Metric Learning, explain it in details.
 - c) Write different applications of auto encoder.
 - d) Explain RCNNs with Keras.
 - e) Explain the use of auto encoder in dimensionality reduction & classification.
- Q.6 Attempt Any One. 06**
- a) Explain transfer learning.
 - b) Explain Deep learning optimizers.
- Q.7 Attempt the following. 06**
- Explain SGD optimizer for CNNs.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

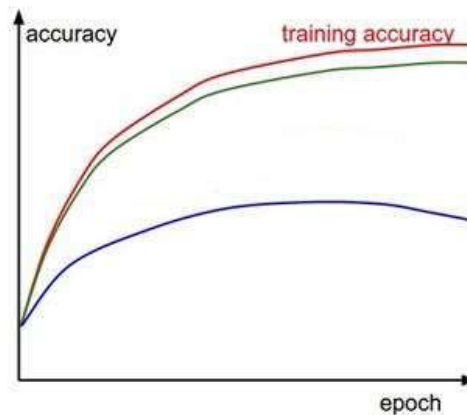
Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is an example of hyper parameters
 - a) Learning rate
 - b) Loss function
 - c) Under-fitting
 - d) All a, b, c
- 2) What will happen to our machine learning model if the number of features is more than the number of data elements in our dataset?
 - a) It will be in under-fitting
 - b) It will not work
 - c) It will be in overfitting
 - d) It will not be affected
- 3) _____ computes the output volume by computing dot product between all filters and image patch.
 - a) Input Layer
 - b) Convolution Layer
 - c) Activation Function Layer
 - d) Pool Layer
- 4) _____ is a pooling operation that selects the maximum element from the region of the feature map covered by the filter.
 - a) Max Pooling
 - b) Average Pooling
 - c) Global pooling
 - d) None of these
- 5) The rate at which cost changes with respect to weight or bias is called _____.
 - a) Derivative
 - b) Gradient
 - c) Rate of Change
 - d) Loss
- 6) Recurrent Neural Networks are best suited for Text Processing.
 - a) True
 - b) False
- 7) Which of the following functions can be used as an activation function in the output layer if we wish to predict the probabilities of n classes (p_1, p_2, \dots, p_n) such that sum of p over all n equals to 1?
 - a) Softmax
 - b) ReLu
 - c) Sigmoid
 - d) Tanh

- 8) The red curve below denotes training accuracy with respect to each epoch in a deep learning algorithm. Both the green and blue curves denote validation accuracy. Which of these indicate overfitting?



- a) Green Curve
b) Blue Curve
c) None
d) Red curve
- 9) What does LSTM stand for?
a) Long Short Term Memory
b) Least Squares Term Memory
c) Least Square Time Mean
d) Long Short Threshold Memory
- 10) _____ is a recommended Model for Pattern Recognition in Unlabelled Data.
a) Shallow Neural Networks
b) Auto encoders
c) RNN
d) CNN
- 11) What is the method to overcome the Decay of Information through time in RNN known as?
a) Back Propagation
b) Gradient Descent
c) Activation
d) Gating
- 12) De-noising and Contractive are examples of _____.
a) Shallow Neural Networks
b) Auto encoders
c) Convolution Neural Networks
d) Recurrent Neural Networks
- 13) Auto encoders cannot be used for Dimensionality Reduction.
a) False
b) True
- 14) What will happen when we will increase the machine learning model complexity?
a) bias increases
b) bias decreases
c) variance increases
d) variance decreases

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
COMPUTER SCIENCE AND ENGINEERING
Deep Learning (197043808)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four. 16**
- a) Write differences between LOOCV and K fold cross validation.
 - b) Explain architectural design.
 - c) Explain cost function in detail.
 - d) Enlist different deep learning software libraries.
 - e) What is regularization, explain its different method.
- Q.3 Attempt Any One. 06**
- a) Explain RNN and CNN in details.
 - b) Explain LSTM in details.
- Q.4 Attempt the following. 06**
- Explain any four activation function.

Section – II

- Q.5 Attempt Any Four. 16**
- a) Explain computer Vision.
 - b) Define Metric Learning, explain it in details.
 - c) Write different applications of auto encoder.
 - d) Explain RCNNs with Keras.
 - e) Explain the use of auto encoder in dimensionality reduction & classification.
- Q.6 Attempt Any One. 06**
- a) Explain transfer learning.
 - b) Explain Deep learning optimizers.
- Q.7 Attempt the following. 06**
- Explain SGD optimizer for CNNs.

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)**

Day & Date: Monday, 13-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Total flux passing through closed surface held in magnetic field is _____.
 - a) Infinity
 - b) Zero
 - c) Unity
 - d) None of the above
- 2) Magnetic flux density is relation of _____.
 - a) Current & area
 - b) area & its direction
 - c) Magnetic flux & area
 - d) None of the above
- 3) The γ is known as _____.
 - a) Propagation constant
 - b) Attenuation constant
 - c) Absolute constant
 - d) None of the above
- 4) An Electric field of dipole varies _____.
 - a) $1/r$
 - b) $1/r^2$
 - c) $1/r^3$
 - d) None
- 5) A point charge $(+)Q \dots C$ is 10 cm from second point charge of $(-)Q \dots C$, the direction of the force on each charge is _____.
 - a) Away from each other
 - b) Towards each other
 - c) from the mid-point
 - d) None
- 6) For lossless transmission line _____.
 - a) $R = 0, G = 0$
 - b) $G = 0, \alpha = \beta$
 - c) $R = 0, G = 0, \beta = 0$
 - d) All of the above
- 7) Identify the correct Statement
 - a) $\bar{a}x \cdot \bar{a}x = 1$
 - b) $\bar{a}x \cdot \bar{a}y = 0$
 - c) both a & b
 - d) None of the above
- 8) An Example of Vector field is _____.
 - a) Electric Potential
 - b) Temp Distribution
 - c) Magnetic field Intensity
 - d) All of the above
- 9) Significance of Gauss law is _____.
 - a) Non-existence of monopole
 - b) existence of Source & sink
 - c) Both a & b
 - d) None

- 10) Identify which of the following is the unit of magnetic Potential?
a) Weber
b) Weber/m
c) Tesla
d) Weber⁻¹
- 11) Stokes theorem is _____.
a) $\int Hdl = I$
b) $\int Hdl = \int (\nabla \times H) \times ds$
c) $\int Hdl = \int (\nabla \times H) \cdot ds$
d) None
- 12) Velocity of electromagnetic wave in free space is _____.
a) 1.5×10^8 m/s
b) 3×10^8 m/s
c) 2×10^8 m/s
d) None of these
- 13) Current through capacitor is called _____.
a) J
b) J_d
c) $J + J_d$
d) Cannot say
- 14) Maxwell's equations involve _____.
a) Charge density
b) Current density
c) Magnetic intensity
d) All of these

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four. **16**

- Derive an expression for current carrying conductor in magnetic fields.
- Transform $A = 7\bar{a}_r + 5\bar{a}_\theta + 3\bar{a}_\phi$ at point $P(3, 45^\circ, 45^\circ)$ into Cartesian.
- If $V = 60 \sin \theta / r^2 \dots V$ in free space at point $P(r = 1m, \theta = 45^\circ, \phi = 60^\circ)$
 Calculate
 - V
 - E
- State and explain Ampere circuital law of magneto statics.
- Point Charge $300\mu C$ located at $(1, -1, -3)m$ experiences the force $\bar{F}_1 = 8\bar{a}_x - 8\bar{a}_y + 4\bar{a}_z(N)$ due to point charge Q_2 at $(3, -3, -2)m$. Determine Q_2 .

Q.3 Attempt any two. **12**

- Derive the equation for \bar{E} due to infinite volume charge
- Derive a Boundary conditions for Magneto static fields.
- Evaluate both sides of Divergence theorem for the field $D = 2xy\bar{a}_x + x^2\bar{a}_y \dots C/m^2$ & rectangular parallel pipe bounded by plane. $X = 0$ & $X = 1$; $Y = 0$ & $Y = 2$; $Z = 0$ & $Z = 3$

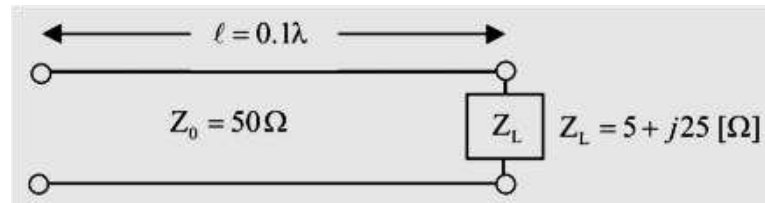
Section – II

Q.4 Attempt any four. **16**

- A coil has conductivity $\sigma = 10^{-3}$, relative permeability $\epsilon_r = 2.5$. Find conduction current & displacement current density for $E = 6 \times 10^6 \sin(9 \times 10^9 t)$
- Derive an expression for modification of wave equation for sinusoidal time variations.
- Derive Maxwell equation in point and integral form of time varying field.
- Find Skin depth δ at frequency of 1.6 MHz in aluminum where $\sigma = 38.2 \text{ mho/m}$ & $\mu_r = 1$.
- Derive an expression for reflection coefficient with reference to transmission line.

Q.5 Attempt any two.

a)



Find the following Parameters from smith Chart.

- i) VSWR
 - ii) Reflection Coefficient
 - iii) Input impedance
- b)** Show that power flow for plane wave is given by $E \times H$.
- c)** Open wire telephone line has $R = 10 \text{ ohm/km}$, $L = 0.004 \text{ H/Km}$, $C = 0.008 \times 10^{-6} \text{ f/km}$ & $G = 0.4 \times 10^{-6} \text{ Ohm/km}$. Determine Z_0 , α , β at 1 KHZ.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) An Example of Vector field is _____.
 - a) Electric Potential
 - b) Temp Distribution
 - c) Magnetic field Intensity
 - d) All of the above
- 2) Significance of Gauss law is _____.
 - a) Non-existence of monopole
 - b) existence of Source & sink
 - c) Both a & b
 - d) None
- 3) Identify which of the following is the unit of magnetic Potential?
 - a) Weber
 - b) Weber/m
 - c) Tesla
 - d) Weber⁻¹
- 4) Stokes theorem is _____.
 - a) $\int Hdl = I$
 - b) $\int Hdl = \int (\nabla \times H) \cdot ds$
 - c) $\int Hdl = \int (\nabla \times H) \cdot ds$
 - d) None
- 5) Velocity of electromagnetic wave in free space is _____.
 - a) 1.5×10^8 m/s
 - b) 3×10^8 m/s
 - c) 2×10^8 m/s
 - d) None of these
- 6) Current through capacitor is called _____.
 - a) J
 - b) J_d
 - c) $J + J_d$
 - d) Cannot say
- 7) Maxwell's equations involve _____.
 - a) Charge density
 - b) Current density
 - c) Magnetic intensity
 - d) All of these
- 8) Total flux passing through closed surface held in magnetic field is _____.
 - a) Infinity
 - b) Zero
 - c) Unity
 - d) None of the above
- 9) Magnetic flux density is relation of _____.
 - a) Current & area
 - b) area & its direction
 - c) Magnetic flux & area
 - d) None of the above

- 10) The γ is known as ____.
- a) Propagation constant b) Attenuation constant
c) Absolute constant d) None of the above
- 11) An Electric field of dipole varies ____.
- a) $1/r$ b) $1/r^2$
c) $1/r^3$ d) None
- 12) A point charge $(+)Q \dots C$ is 10 cm from second point charge of $(-)Q \dots C$, the direction of the force on each charge is ____.
- a) Away from each other b) Towards each other
c) from the mid-point d) None
- 13) For lossless transmission line ____.
- a) $R = 0, G = 0$ b) $G = 0, \alpha = \beta$
c) $R = 0, G = 0, \beta = 0$ d) All of the above
- 14) Identify the correct Statement
- a) $\bar{a}x \cdot \bar{a}x = 1$ b) $\bar{a}x \cdot \bar{a}y = 0$
c) both a & b d) None of the above

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four. **16**

- Derive an expression for current carrying conductor in magnetic fields.
- Transform $A = 7\bar{a}_r + 5\bar{a}_\theta + 3\bar{a}_\phi$ at point $P(3, 45^\circ, 45^\circ)$ into Cartesian.
- If $V = 60 \sin \theta / r^2 \dots V$ in free space at point $P(r = 1m, \theta = 45^\circ, \phi = 60^\circ)$
 Calculate
 - V
 - E
- State and explain Ampere circuital law of magneto statics.
- Point Charge $300\mu C$ located at $(1, -1, -3)m$ experiences the force $\bar{F}_1 = 8\bar{a}_x - 8\bar{a}_y + 4\bar{a}_z(N)$ due to point charge Q_2 at $(3, -3, -2)m$. Determine Q_2 .

Q.3 Attempt any two. **12**

- Derive the equation for \bar{E} due to infinite volume charge
- Derive a Boundary conditions for Magneto static fields.
- Evaluate both sides of Divergence theorem for the field $D = 2xy\bar{a}_x + x^2\bar{a}_y \dots C/m^2$ & rectangular parallel pipe bounded by plane. $X = 0$ & $X = 1$; $Y = 0$ & $Y = 2$; $Z = 0$ & $Z = 3$

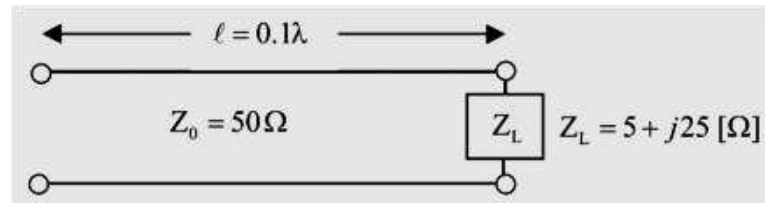
Section – II

Q.4 Attempt any four. **16**

- A coil has conductivity $\sigma = 10^{-3}$, relative permeability $\epsilon_r = 2.5$. Find conduction current & displacement current density for $E = 6 \times 10^6 \sin(9 \times 10^9 t)$
- Derive an expression for modification of wave equation for sinusoidal time variations.
- Derive Maxwell equation in point and integral form of time varying field.
- Find Skin depth δ at frequency of 1.6 MHz in aluminum where $\sigma = 38.2 \text{ mho/m}$ & $\mu_r = 1$.
- Derive an expression for reflection coefficient with reference to transmission line.

Q.5 Attempt any two.

a)



Find the following Parameters from smith Chart.

- i) VSWR
 - ii) Reflection Coefficient
 - iii) Input impedance
- b)** Show that power flow for plane wave is given by $E \times H$.
- c)** Open wire telephone line has
 $R = 10 \text{ ohm/km}$, $L = 0.004 \text{ H/Km}$, $C = 0.008 \times 10^{-6} \text{ f/km}$ &
 $G = 0.4 \times 10^{-6} \text{ Ohm/km}$. Determine Z_0 , α , β at 1 KHZ.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Stokes theorem is _____.
 - a) $\int Hdl = I$
 - b) $\int Hdl = \int (\nabla \times H) \cdot ds$
 - c) $\int Hdl = \int (\nabla \times H) \cdot ds$
 - d) None
- 2) Velocity of electromagnetic wave in free space is _____.
 - a) 1.5×10^8 m/s
 - b) 3×10^8 m/s
 - c) 2×10^8 m/s
 - d) None of these
- 3) Current through capacitor is called _____.
 - a) J
 - b) J_d
 - c) $J + J_d$
 - d) Cannot say
- 4) Maxwell's equations involve _____.
 - a) Charge density
 - b) Current density
 - c) Magnetic intensity
 - d) All of these
- 5) Total flux passing through closed surface held in magnetic field is _____.
 - a) Infinity
 - b) Zero
 - c) Unity
 - d) None of the above
- 6) Magnetic flux density is relation of _____.
 - a) Current & area
 - b) area & its direction
 - c) Magnetic flux & area
 - d) None of the above
- 7) The γ is known as _____.
 - a) Propagation constant
 - b) Attenuation constant
 - c) Absolute constant
 - d) None of the above
- 8) An Electric field of dipole varies _____.
 - a) $1/r$
 - b) $1/r^2$
 - c) $1/r^3$
 - d) None

- 9) A point charge $(+)Q \dots C$ is 10 cm from second point charge of $(-)Q \dots C$, the direction of the force on each charge is _____.
- a) Away from each other b) Towards each other
c) from the mid-point d) None
- 10) For lossless transmission line _____.
- a) $R = 0, G = 0$ b) $G = 0, \alpha = \beta$
c) $R = 0, G = 0, \beta = 0$ d) All of the above
- 11) Identify the correct Statement
- a) $\bar{a}x \cdot \bar{a}x = 1$ b) $\bar{a}x \cdot \bar{a}y = 0$
c) both a & b d) None of the above
- 12) An Example of Vector field is _____.
- a) Electric Potential b) Temp Distribution
c) Magnetic field Intensity d) All of the above
- 13) Significance of Gauss law is _____.
- a) Non-existence of monopole b) existence of Source & sink
c) Both a & b d) None
- 14) Identify which of the following is the unit of magnetic Potential?
- a) Weber b) Weber/m
c) Tesla d) Weber⁻¹

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four. **16**

- Derive an expression for current carrying conductor in magnetic fields.
- Transform $A = 7\bar{a}_r + 5\bar{a}_\theta + 3\bar{a}_\phi$ at point $P(3, 45^\circ, 45^\circ)$ into Cartesian.
- If $V = 60 \sin \theta / r^2 \dots V$ in free space at point $P(r = 1m, \theta = 45^\circ, \phi = 60^\circ)$
 Calculate
 - V
 - E
- State and explain Ampere circuital law of magneto statics.
- Point Charge $300\mu C$ located at $(1, -1, -3)m$ experiences the force $\bar{F}_1 = 8\bar{a}_x - 8\bar{a}_y + 4\bar{a}_z(N)$ due to point charge Q_2 at $(3, -3, -2)m$. Determine Q_2 .

Q.3 Attempt any two. **12**

- Derive the equation for \bar{E} due to infinite volume charge
- Derive a Boundary conditions for Magneto static fields.
- Evaluate both sides of Divergence theorem for the field $D = 2xy\bar{a}_x + x^2\bar{a}_y \dots C/m^2$ & rectangular parallel pipe bounded by plane. $X = 0$ & $X = 1$; $Y = 0$ & $Y = 2$; $Z = 0$ & $Z = 3$

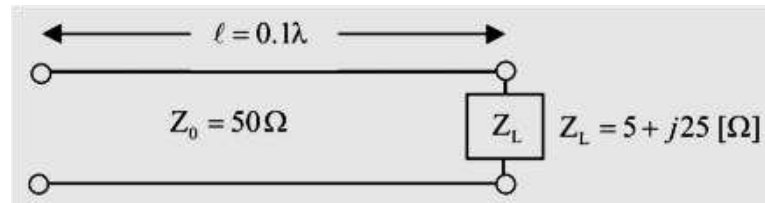
Section – II

Q.4 Attempt any four. **16**

- A coil has conductivity $\sigma = 10^{-3}$, relative permeability $\epsilon_r = 2.5$. Find conduction current & displacement current density for $E = 6 \times 10^6 \sin(9 \times 10^9 t)$
- Derive an expression for modification of wave equation for sinusoidal time variations.
- Derive Maxwell equation in point and integral form of time varying field.
- Find Skin depth δ at frequency of 1.6 MHz in aluminum where $\sigma = 38.2 \text{ mho/m}$ & $\mu_r = 1$.
- Derive an expression for reflection coefficient with reference to transmission line.

Q.5 Attempt any two.

a)



Find the following Parameters from smith Chart.

- i) VSWR
 - ii) Reflection Coefficient
 - iii) Input impedance
- b)** Show that power flow for plane wave is given by $E \times H$.
- c)** Open wire telephone line has $R = 10 \text{ ohm/km}$, $L = 0.004 \text{ H/Km}$, $C = 0.008 \times 10^{-6} \text{ f/km}$ & $G = 0.4 \times 10^{-6} \text{ Ohm/km}$. Determine Z_0 , α , β at 1 KHZ.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) For lossless transmission line _____.
 - a) $R = 0, G = 0$
 - b) $G = 0, \alpha = \beta$
 - c) $R = 0, G = 0, \beta = 0$
 - d) All of the above
- 2) Identify the correct Statement
 - a) $\vec{a}x \cdot \vec{a}x = 1$
 - b) $\vec{a}x \cdot \vec{a}y = 0$
 - c) both a & b
 - d) None of the above
- 3) An Example of Vector field is _____.
 - a) Electric Potential
 - b) Temp Distribution
 - c) Magnetic field Intensity
 - d) All of the above
- 4) Significance of Gauss law is _____.
 - a) Non-existence of monopole
 - b) existence of Source & sink
 - c) Both a & b
 - d) None
- 5) Identify which of the following is the unit of magnetic Potential?
 - a) Weber
 - b) Weber/m
 - c) Tesla
 - d) Weber⁻¹
- 6) Stokes theorem is _____.
 - a) $\int Hdl = I$
 - b) $\int Hdl = \int (\nabla \times H) \cdot ds$
 - c) $\int Hdl = \int (\nabla \times H) \cdot ds$
 - d) None
- 7) Velocity of electromagnetic wave in free space is _____.
 - a) 1.5×10^8 m/s
 - b) 3×10^8 m/s
 - c) 2×10^8 m/s
 - d) None of these
- 8) Current through capacitor is called _____.
 - a) J
 - b) J_d
 - c) $J + J_d$
 - d) Cannot say
- 9) Maxwell's equations involve _____.
 - a) Charge density
 - b) Current density
 - c) Magnetic intensity
 - d) All of these

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electromagnetic Field Theory (BTN06501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four. **16**

- Derive an expression for current carrying conductor in magnetic fields.
- Transform $A = 7\bar{a}_r + 5\bar{a}_\theta + 3\bar{a}_\phi$ at point $P(3, 45^\circ, 45^\circ)$ into Cartesian.
- If $V = 60 \sin \theta / r^2 \dots V$ in free space at point $P(r = 1m, \theta = 45^\circ, \phi = 60^\circ)$
 Calculate
 - V
 - E
- State and explain Ampere circuital law of magneto statics.
- Point Charge $300\mu C$ located at $(1, -1, -3)m$ experiences the force $\bar{F}_1 = 8\bar{a}_x - 8\bar{a}_y + 4\bar{a}_z(N)$ due to point charge Q_2 at $(3, -3, -2)m$. Determine Q_2 .

Q.3 Attempt any two. **12**

- Derive the equation for \bar{E} due to infinite volume charge
- Derive a Boundary conditions for Magneto static fields.
- Evaluate both sides of Divergence theorem for the field $D = 2xy\bar{a}_x + x^2\bar{a}_y \dots C/m^2$ & rectangular parallel pipe bounded by plane. $X = 0$ & $X = 1$; $Y = 0$ & $Y = 2$; $Z = 0$ & $Z = 3$

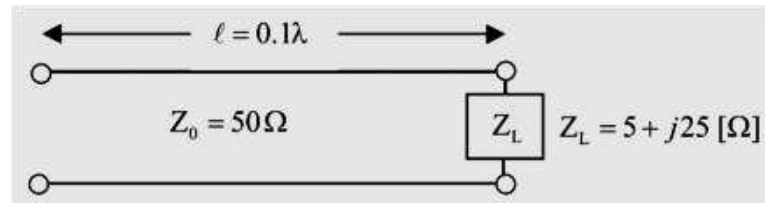
Section – II

Q.4 Attempt any four. **16**

- A coil has conductivity $\sigma = 10^{-3}$, relative permeability $\epsilon_r = 2.5$. Find conduction current & displacement current density for $E = 6 \times 10^6 \sin(9 \times 10^9 t)$
- Derive an expression for modification of wave equation for sinusoidal time variations.
- Derive Maxwell equation in point and integral form of time varying field.
- Find Skin depth δ at frequency of 1.6 MHz in aluminum where $\sigma = 38.2 \text{ mho/m}$ & $\mu_r = 1$.
- Derive an expression for reflection coefficient with reference to transmission line.

Q.5 Attempt any two.

a)



Find the following Parameters from smith Chart.

- i) VSWR
 - ii) Reflection Coefficient
 - iii) Input impedance
- b)** Show that power flow for plane wave is given by $E \times H$.
- c)** Open wire telephone line has $R = 10 \text{ ohm/km}$, $L = 0.004 \text{ H/Km}$, $C = 0.008 \times 10^{-6} \text{ f/km}$ & $G = 0.4 \times 10^{-6} \text{ Ohm/km}$. Determine Z_0 , α , β at 1 KHZ.

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQs/ Objective type questions**14**

- 1) The internal RAM memory of the 8051 is:
 - a) 32 bytes
 - b) 64 bytes
 - c) 128 bytes
 - d) 256 bytes
- 2) This program code will be executed continuously:
 STAT: MOV A, #01h
 JNZ STAT
 - a) True
 - b) False
- 3) Data transfer from I/O to external data memory can only be done with the MOVX command.
 - a) True
 - b) False
- 4) MOV A, @R1 will:
 - a) copy R1 to the Accumulator
 - b) copy the Accumulator to R1
 - c) copy the contents of memory whose address is in R1 to Accumulator
 - d) copy the contents of Accumulator to memory whose address is in R1
- 5) When the 8051 is reset and the \overline{EA} line is HIGH, the program counter points to the first program instruction in the _____.
 - a) Internal code memory
 - b) External code memory
 - c) Internal data memory
 - d) External data memory
- 6) The total external data memory that can be interfaced to the 8051 is _____.
 - a) 32 Kbytes
 - b) 64 Kbytes
 - c) 128 Kbytes
 - d) 256 Kbytes
- 7) Which of the following instructions will load the value 35H into the high byte of timer 0?
 - a) MOV TH0,#35h
 - b) MOV TH0,35h
 - c) MOV T0,#35h
 - d) MOV T0,35h

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)

Day & Date: Tuesday, 14-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- Draw architecture/ schematic of 8051. Explain function of each block in detail.
- Explain different groups of Instruction Set in 8051.
- Write ALP to insert a delay of 1ms using registers.
- Compare between Assembly Language and C-programming language.
- Explain PSW register in 8051.

Q.3 Solve any two of the following. 12

- Draw and explain the External Memory Interfacing with 8051. Attach 4KB RAM. Also find the starting and end address.
- Write ALP to interface the 4×4 matrix keyboard with 8051.
- Write in details the Timers, and associated registers in 8051.

Section – II

Q.4 Solve any four of the following. 16

- Explain the advantages of PIC over microcontroller.
- Explain the Architecture of PIC 16F877A.
- Explain the different PORTS available in PIC 16F877A.
- Write a short note on
 - OPTION_REG register
 - STATUS register in PIC 16F877A
- Write a short note on
 - WDT
 - CCP module

Q.5 Solve any two of the following. 12

- What is Configuration word? Explain the bit format in that.
- What is Interrupt? List out the Low order and high priority Interrupts in PIC 16F877A.
- Explain the serial communication using USART.

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)**

Day & Date: Tuesday, 14-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- Draw architecture/ schematic of 8051. Explain function of each block in detail.
- Explain different groups of Instruction Set in 8051.
- Write ALP to insert a delay of 1ms using registers.
- Compare between Assembly Language and C-programming language.
- Explain PSW register in 8051.

Q.3 Solve any two of the following. 12

- Draw and explain the External Memory Interfacing with 8051. Attach 4KB RAM. Also find the starting and end address.
- Write ALP to interface the 4×4 matrix keyboard with 8051.
- Write in details the Timers, and associated registers in 8051.

Section – II

Q.4 Solve any four of the following. 16

- Explain the advantages of PIC over microcontroller.
- Explain the Architecture of PIC 16F877A.
- Explain the different PORTS available in PIC 16F877A.
- Write a short note on
 - OPTION_REG register
 - STATUS register in PIC 16F877A
- Write a short note on
 - WDT
 - CCP module

Q.5 Solve any two of the following. 12

- What is Configuration word? Explain the bit format in that.
- What is Interrupt? List out the Low order and high priority Interrupts in PIC 16F877A.
- Explain the serial communication using USART.

Seat No.	
-------------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQs/ Objective type questions**14**

- 1) How many clock pulses are confined by each machine cycle of Peripheral-Interface Controllers?

a) 4	b) 8
c) 12	d) 16
- 2) Where is the result stored after an execution of increment and decrement operations over the special - purpose registers in PIC?

a) File Register	b) Working Register
c) Both a & b	d) None of the above
- 3) What is the purpose of a special function register SPBRG in USART?

a) To control the operation associated with baud rate generation	b) To control an oscillator frequency
c) To control or prevent the false bit transmission of 9 th bitr.	d) All of the above
- 4) PIC microcontrollers consist of _____ timers, out of which _____ is a 16-bit timer.

a) 3, Timer 1	b) 3, Timer 0
c) 2, Timer 2	d) 3, Timer 3
- 5) The internal RAM memory of the 8051 is:

a) 32 bytes	b) 64 bytes
c) 128 bytes	d) 256 bytes
- 6) This program code will be executed continuously:
 STAT: MOV A, #01h
 JNZ STAT

a) True	b) False
---------	----------
- 7) Data transfer from I/O to external data memory can only be done with the MOVX command.

a) True	b) False
---------	----------

- 8) MOV A, @R1 will:
- copy R1 to the Accumulator
 - copy the Accumulator to R1
 - copy the contents of memory whose address is in R1 to Accumulator
 - copy the contents of Accumulator to memory whose address is in R1
- 9) When the 8051 is reset and the \overline{EA} line is HIGH, the program counter points to the first program instruction in the _____.
- Internal code memory
 - External code memory
 - Internal data memory
 - External data memory
- 10) The total external data memory that can be interfaced to the 8051 is _____
- 32 Kbytes
 - 64 Kbytes
 - 128 Kbytes
 - 256 Kbytes
- 11) Which of the following instructions will load the value 35H into the high byte of timer 0?
- MOV TH0,#35h
 - MOV TH0,35h
 - MOV T0,#35h
 - MOV T0,35h
- 12) The contents of the accumulator after this operation
MOV A,#0BH
ANL A,#2CH
will be _____.
- 11010111
 - 11011010
 - 00001000
 - 00101000
- 13) Which operational feature of PIC allows it to reset especially when the power supply drops the voltage below 4V?
- Built-in Power-on-reset
 - Brown-out reset
 - Both a & b
 - None of the above
- 14) Which flags are more likely to get affected in status registers by Arithmetic and Logical Unit (ALU) of PIC 16 CXX on the basis of instructions execution?
- Carry (C) Flags
 - Zero (Z) Flags
 - Digit Carry (DC) Flags
 - All of the above

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- a) Draw architecture/ schematic of 8051. Explain function of each block in detail.
- b) Explain different groups of Instruction Set in 8051.
- c) Write ALP to insert a delay of 1ms using registers.
- d) Compare between Assembly Language and C-programming language.
- e) Explain PSW register in 8051.

Q.3 Solve any two of the following. 12

- a) Draw and explain the External Memory Interfacing with 8051. Attach 4KB RAM. Also find the starting and end address.
- b) Write ALP to interface the 4×4 matrix keyboard with 8051.
- c) Write in details the Timers, and associated registers in 8051.

Section – II

Q.4 Solve any four of the following. 16

- a) Explain the advantages of PIC over microcontroller.
- b) Explain the Architecture of PIC 16F877A.
- c) Explain the different PORTS available in PIC 16F877A.
- d) Write a short note on
 - i) OPTION_REG register
 - ii) STATUS register in PIC 16F877A
- e) Write a short note on
 - i) WDT
 - ii) CCP module

Q.5 Solve any two of the following. 12

- a) What is Configuration word? Explain the bit format in that.
- b) What is Interrupt? List out the Low order and high priority Interrupts in PIC 16F877A.
- c) Explain the serial communication using USART.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQs/ Objective type questions**14**

- 1) The total external data memory that can be interfaced to the 8051 is ____
 - a) 32 Kbytes
 - b) 64 Kbytes
 - c) 128 Kbytes
 - d) 256 Kbytes
- 2) Which of the following instructions will load the value 35H into the high byte of timer 0?
 - a) MOV TH0,#35h
 - b) MOV TH0,35h
 - c) MOV T0,#35h
 - d) MOV T0,35h
- 3) The contents of the accumulator after this operation
 MOV A,#0BH
 ANL A,#2CH
 will be _____.
 - a) 11010111
 - b) 11011010
 - c) 00001000
 - d) 00101000
- 4) Which operational feature of PIC allows it to reset especially when the power supply drops the voltage below 4V?
 - a) Built-in Power-on-reset
 - b) Brown-out reset
 - c) Both a & b
 - d) None of the above
- 5) Which flags are more likely to get affected in status registers by Arithmetic and Logical Unit (ALU) of PIC 16 CXX on the basis of instructions execution?
 - a) Carry (C) Flags
 - b) Zero (Z) Flags
 - c) Digit Carry (DC) Flags
 - d) All of the above
- 6) How many clock pulses are confined by each machine cycle of Peripheral-Interface Controllers?
 - a) 4
 - b) 8
 - c) 12
 - d) 16
- 7) Where is the result stored after an execution of increment and decrement operations over the special - purpose registers in PIC?
 - a) File Register
 - b) Working Register
 - c) Both a & b
 - d) None of the above

- 8) What is the purpose of a special function register SPBRG in USART?
- a) To control the operation associated with baud rate generation
 - b) To control an oscillator frequency
 - c) To control or prevent the false bit transmission of 9th bitr.
 - d) All of the above
- 9) PIC microcontrollers consist of _____ timers, out of which _____ is a 16-bit timer.
- a) 3, Timer 1
 - b) 3, Timer 0
 - c) 2, Timer 2
 - d) 3, Timer 3
- 10) The internal RAM memory of the 8051 is:
- a) 32 bytes
 - b) 64 bytes
 - c) 128 bytes
 - d) 256 bytes
- 11) This program code will be executed continuously:
STAT: MOV A, #01h
JNZ STAT
- a) True
 - b) False
- 12) Data transfer from I/O to external data memory can only be done with the MOVX command.
- a) True
 - b) False
- 13) MOV A, @R1 will:
- a) copy R1 to the Accumulator
 - b) copy the Accumulator to R1
 - c) copy the contents of memory whose address is in R1 to Accumulator
 - d) copy the contents of Accumulator to memory whose address is in R1
- 14) When the 8051 is reset and the \overline{EA} line is HIGH, the program counter points to the first program instruction in the _____.
- a) Internal code memory
 - b) External code memory
 - c) Internal data memory
 - d) External data memory

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Microcontrollers and Applications (BTN06502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- a) Draw architecture/ schematic of 8051. Explain function of each block in detail.
- b) Explain different groups of Instruction Set in 8051.
- c) Write ALP to insert a delay of 1ms using registers.
- d) Compare between Assembly Language and C-programming language.
- e) Explain PSW register in 8051.

Q.3 Solve any two of the following. 12

- a) Draw and explain the External Memory Interfacing with 8051. Attach 4KB RAM. Also find the starting and end address.
- b) Write ALP to interface the 4×4 matrix keyboard with 8051.
- c) Write in details the Timers, and associated registers in 8051.

Section – II

Q.4 Solve any four of the following. 16

- a) Explain the advantages of PIC over microcontroller.
- b) Explain the Architecture of PIC 16F877A.
- c) Explain the different PORTS available in PIC 16F877A.
- d) Write a short note on
 - i) OPTION_REG register
 - ii) STATUS register in PIC 16F877A
- e) Write a short note on
 - i) WDT
 - ii) CCP module

Q.5 Solve any two of the following. 12

- a) What is Configuration word? Explain the bit format in that.
- b) What is Interrupt? List out the Low order and high priority Interrupts in PIC 16F877A.
- c) Explain the serial communication using USART.

- 9) The disadvantage of FIR filter _____.
- a) FIR filter with exact linear phase can be easily designed
 - b) FIR filter can be realized in both recursive and non recursive structure
 - c) FIR filters are free from limit cycle oscillation
 - d) Memory requirement and execution time are high
- 10) The impulse response of ideal filter is _____.
- a) Causal
 - b) Non causal
 - c) Non causal and finite
 - d) None
- 11) Properties of Butterworth low pass filter is given by _____.
- a) The poles of Butterworth filter lies on a circle
 - b) The poles of Butterworth filter lies outside on a circle
 - c) The poles of Butterworth filter lies inside on a circle
 - d) None
- 12) The mapping of bilinear transformation is _____.
- a) many to many mapping
 - b) many to one mapping
 - c) one to one mapping
 - d) None
- 13) A cascade of simple FIR filter results in _____.
- a) improved high pass frequency response
 - b) improved low pass frequency response
 - c) improved linear phase
 - d) None
- 14) For Direct form I realization we require _____.
- a) $M+N+1$ multiplication
 - b) $M+N$ addition
 - c) $M+N+1$ memory location
 - d) All of the above

Seat No.	
----------	--

Set P

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Find cross correlation of sequence
 $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- b) Check whether the following systems are stable or not
 i) $y(n) = x(n)u(n)$ ii) $h(n) = \left(\frac{1}{2}\right)^n u(n)$
- c) Determine DFT of a sequence $x(n)$ if $x(n) = \{3, 5, 2, 3\}$.
- d) List the properties of DFT & explain circular convolution properties of DFT.
- e) Calculate 4-point DFT values of the sequence $\cos(n * \pi/2)$ using DIT, FFT Algorithm.

Q.3 Attempt any two **12**

- a) Find DFT of the sequence $x(n) = \{1, 2, 3, 4, 4, 3, 2, 1\}$ using FFT algorithm.
- b) Find linear convolution Using overlap add method, of the following sequence
 $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- c) Find circular convolution of two finite duration sequence
 $x(n) = \{1, -1, -6, 3, -1, 5\}$ $h(n) = \{1, 2, 3, 1\}$

Section – II

Q.4 Attempt any Four **16**

- a) Explain windowing technique for designing FIR filter?
- b) What is warping effect? What is its effect on magnitude and phase response?
- c) For analog transfer function

$$H(s) = \frac{2}{(s+1)(s+2)}$$

Determine $H(Z)$ using impulse invariant transformation with $T=1$ sec.

- d) Determine FIR filter coefficients for direct form, structure whose lattice coefficients
 Are $k_1 = \frac{1}{3}$; $k_2 = \frac{1}{2}$; $k_3 = \frac{1}{5}$

Q.5 Attempt any two

- a) For analog transfer function

$$H(s) = \frac{2}{(s+5)(s+3)}$$

Determine $H(Z)$ using Bilinear transformation with $T=1$ sec.

- b) Design seven coefficients FIR LPF using frequency sampling method with following specifications

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$

- c) Explain the application of DSP in radar signal processing.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) For impulse response of FIR filter to satisfy for constant group delay, the phase is given by _____.
 - a) $\theta(w) = -aw$
 - b) $\theta(w) = aw$
 - c) $\theta(w) = \beta - aw$
 - d) $\theta(w) = 0$
- 2) The disadvantage of FIR filter _____.
 - a) FIR filter with exact linear phase can be easily designed
 - b) FIR filter can be realized in both recursive and non recursive structure
 - c) FIR filters are free from limit cycle oscillation
 - d) Memory requirement and execution time are high
- 3) The impulse response of ideal filter is _____.
 - a) Causal
 - b) Non causal
 - c) Non causal and finite
 - d) None
- 4) Properties of Butterworth low pass filter is given by _____.
 - a) The poles of Butterworth filter lies on a circle
 - b) The poles of Butterworth filter lies outside on a circle
 - c) The poles of Butterworth filter lies inside on a circle
 - d) None
- 5) The mapping of bilinear transformation is _____.
 - a) many to many mapping
 - b) many to one mapping
 - c) one to one mapping
 - d) None
- 6) A cascade of simple FIR filter results in _____.
 - a) improved high pass frequency response
 - b) improved low pass frequency response
 - c) improved linear phase
 - d) None
- 7) For Direct form I realization we require _____.
 - a) $M+N+1$ multiplication
 - b) $M+N$ addition
 - c) $M+N+1$ memory location
 - d) All of the above
- 8) A mathematical operation that closely resembles convolution is _____.
 - a) Correlation
 - b) Folding
 - c) Multiplication
 - d) None of the above

- 9) $X(0)$ value of 5 point sequence $x(n)=\{2\ 3\ 4\ 5\ 3\ 5\}$ is _____.
a) 21 b) 22
c) 17 d) None
- 10) Circular time shift of a sequence is equivalent to _____.
a) Multiplication of the sequence $x(n)$ with complex exponential.
b) Multiplication of the sequence $X(k)$ with complex exponential.
c) Multiplication of the sequence $x(n)$ with exponential factor.
d) None
- 11) Overlap save algorithm uses overlap for _____.
a) Output Sequence b) Input Sequence
c) Both Input & Output Sequence d) Adds the overlapped output
- 12) The size of input data blocks in overlap add method is _____.
a) L b) $L+M$
c) $L+M+1$ d) $L+M-1$
- 13) For DIF, FFT algorithm _____.
a) Input sequence is in natural order
b) Input sequence is in bit reversal order
c) Output sequence is in natural order
d) Both Input & Output sequence are in bit reversal order
- 14) Bit reversal is required for which algorithm from following _____.
a) DIT b) DIF
c) Both a and b d) None

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Find cross correlation of sequence
 $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- b) Check whether the following systems are stable or not
 i) $y(n) = x(n)u(n)$ ii) $h(n) = \left(\frac{1}{2}\right)^n u(n)$
- c) Determine DFT of a sequence $x(n)$ if $x(n) = \{3, 5, 2, 3\}$.
- d) List the properties of DFT & explain circular convolution properties of DFT.
- e) Calculate 4-point DFT values of the sequence $\cos(n * \pi/2)$ using DIT, FFT Algorithm.

Q.3 Attempt any two **12**

- a) Find DFT of the sequence $x(n) = \{1, 2, 3, 4, 4, 3, 2, 1\}$ using FFT algorithm.
- b) Find linear convolution Using overlap add method, of the following sequence
 $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- c) Find circular convolution of two finite duration sequence
 $x(n) = \{1, -1, -6, 3, -1, 5\}$ $h(n) = \{1, 2, 3, 1\}$

Section – II

Q.4 Attempt any Four **16**

- a) Explain windowing technique for designing FIR filter?
- b) What is warping effect? What is its effect on magnitude and phase response?
- c) For analog transfer function

$$H(s) = \frac{2}{(s+1)(s+2)}$$

Determine $H(Z)$ using impulse invariant transformation with $T=1$ sec.

- d) Determine FIR filter coefficients for direct form, structure whose lattice coefficients
 Are $k_1 = \frac{1}{3}$; $k_2 = \frac{1}{2}$; $k_3 = \frac{1}{5}$

Q.5 Attempt any two

- a) For analog transfer function

$$H(s) = \frac{2}{(s+5)(s+3)}$$

Determine $H(Z)$ using Bilinear transformation with $T=1$ sec.

- b) Design seven coefficients FIR LPF using frequency sampling method with following specifications

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$

- c) Explain the application of DSP in radar signal processing.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Properties of Butterworth low pass filter is given by _____.
 - a) The poles of Butterworth filter lies on a circle
 - b) The poles of Butterworth filter lies outside on a circle
 - c) The poles of Butterworth filter lies inside on a circle
 - d) None
- 2) The mapping of bilinear transformation is _____.
 - a) many to many mapping
 - b) many to one mapping
 - c) one to one mapping
 - d) None
- 3) A cascade of simple FIR filter results in _____.
 - a) improved high pass frequency response
 - b) improved low pass frequency response
 - c) improved linear phase
 - d) None
- 4) For Direct form I realization we require _____.
 - a) $M+N+1$ multiplication
 - b) $M+N$ addition
 - c) $M+N+1$ memory location
 - d) All of the above
- 5) A mathematical operation that closely resembles convolution is _____.
 - a) Correlation
 - b) Folding
 - c) Multiplication
 - d) None of the above
- 6) $X(0)$ value of 5 point sequence $x(n)=\{2\ 3\ 4\ 5\ 3\ 5\}$ is _____.
 - a) 21
 - b) 22
 - c) 17
 - d) None
- 7) Circular time shift of a sequence is equivalent to _____.
 - a) Multiplication of the sequence $x(n)$ with complex exponential.
 - b) Multiplication of the sequence $X(k)$ with complex exponential.
 - c) Multiplication of the sequence $x(n)$ with exponential factor.
 - d) None
- 8) Overlap save algorithm uses overlap for _____.
 - a) Output Sequence
 - b) Input Sequence
 - c) Both Input & Output Sequence
 - d) Adds the overlapped output

- 9) The size of input data blocks in overlap add method is _____.
a) L
b) L+M
c) L+M+1
d) L+M-1
- 10) For DIF, FFT algorithm _____.
a) Input sequence is in natural order
b) Input sequence is in bit reversal order
c) Output sequence is in natural order
d) Both Input & Output sequence are in bit reversal order
- 11) Bit reversal is required for which algorithm from following _____.
a) DIT
b) DIF
c) Both a and b
d) None
- 12) For impulse response of FIR filter to satisfy for constant group delay, the phase is given by _____.
a) $\theta(\omega) = -a\omega$
b) $\theta(\omega) = a\omega$
c) $\theta(\omega) = \beta - a\omega$
d) $\theta(\omega) = 0$
- 13) The disadvantage of FIR filter _____.
a) FIR filter with exact linear phase can be easily designed
b) FIR filter can be realized in both recursive and non recursive structure
c) FIR filters are free from limit cycle oscillation
d) Memory requirement and execution time are high
- 14) The impulse response of ideal filter is _____.
a) Causal
b) Non causal
c) Non causal and finite
d) None

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Find cross correlation of sequence
 $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- b) Check whether the following systems are stable or not
 i) $y(n) = x(n)u(n)$ ii) $h(n) = \left(\frac{1}{2}\right)^n u(n)$
- c) Determine DFT of a sequence $x(n)$ if $x(n) = \{3, 5, 2, 3\}$.
- d) List the properties of DFT & explain circular convolution properties of DFT.
- e) Calculate 4-point DFT values of the sequence $\cos(n * \pi/2)$ using DIT, FFT Algorithm.

Q.3 Attempt any two **12**

- a) Find DFT of the sequence $x(n) = \{1, 2, 3, 4, 4, 3, 2, 1\}$ using FFT algorithm.
- b) Find linear convolution Using overlap add method, of the following sequence
 $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- c) Find circular convolution of two finite duration sequence
 $x(n) = \{1, -1, -6, 3, -1, 5\}$ $h(n) = \{1, 2, 3, 1\}$

Section – II

Q.4 Attempt any Four **16**

- a) Explain windowing technique for designing FIR filter?
- b) What is warping effect? What is its effect on magnitude and phase response?
- c) For analog transfer function

$$H(s) = \frac{2}{(s+1)(s+2)}$$

Determine $H(Z)$ using impulse invariant transformation with $T=1$ sec.

- d) Determine FIR filter coefficients for direct form, structure whose lattice coefficients
 Are $k_1 = \frac{1}{3}$; $k_2 = \frac{1}{2}$; $k_3 = \frac{1}{5}$

Q.5 Attempt any two

- a) For analog transfer function

$$H(s) = \frac{2}{(s+5)(s+3)}$$

Determine $H(Z)$ using Bilinear transformation with $T=1$ sec.

- b) Design seven coefficients FIR LPF using frequency sampling method with following specifications

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$

- c) Explain the application of DSP in radar signal processing.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) For DIF, FFT algorithm _____.
 - a) Input sequence is in natural order
 - b) Input sequence is in bit reversal order
 - c) Output sequence is in natural order
 - d) Both Input & Output sequence are in bit reversal order
- 2) Bit reversal is required for which algorithm from following _____.
 - a) DIT
 - b) DIF
 - c) Both a and b
 - d) None
- 3) For impulse response of FIR filter to satisfy for constant group delay, the phase is given by _____.
 - a) $\theta(w) = -aw$
 - b) $\theta(w) = aw$
 - c) $\theta(w) = \beta - aw$
 - d) $\theta(w) = 0$
- 4) The disadvantage of FIR filter _____.
 - a) FIR filter with exact linear phase can be easily designed
 - b) FIR filter can be realized in both recursive and non recursive structure
 - c) FIR filters are free from limit cycle oscillation
 - d) Memory requirement and execution time are high
- 5) The impulse response of ideal filter is _____.
 - a) Causal
 - b) Non causal
 - c) Non causal and finite
 - d) None
- 6) Properties of Butterworth low pass filter is given by _____.
 - a) The poles of Butterworth filter lies on a circle
 - b) The poles of Butterworth filter lies outside on a circle
 - c) The poles of Butterworth filter lies inside on a circle
 - d) None
- 7) The mapping of bilinear transformation is _____.
 - a) many to many mapping
 - b) many to one mapping
 - c) one to one mapping
 - d) None

- 8) A cascade of simple FIR filter results in _____.
a) improved high pass frequency response
b) improved low pass frequency response
c) improved linear phase
d) None
- 9) For Direct form I realization we require _____.
a) $M+N+1$ multiplication
b) $M+N$ addition
c) $M+N+1$ memory location
d) All of the above
- 10) A mathematical operation that closely resembles convolution is _____.
a) Correlation
b) Folding
c) Multiplication
d) None of the above
- 11) $X(0)$ value of 5 point sequence $x(n)=\{2\ 3\ 4\ 5\ 3\ 5\}$ is _____.
a) 21
b) 22
c) 17
d) None
- 12) Circular time shift of a sequence is equivalent to _____.
a) Multiplication of the sequence $x(n)$ with complex exponential.
b) Multiplication of the sequence $X(k)$ with complex exponential.
c) Multiplication of the sequence $x(n)$ with exponential factor.
d) None
- 13) Overlap save algorithm uses overlap for _____.
a) Output Sequence
b) Input Sequence
c) Both Input & Output Sequence
d) Adds the overlapped output
- 14) The size of input data blocks in overlap add method is _____.
a) L
b) $L+M$
c) $L+M+1$
d) $L+M-1$

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Digital Signal Processing (BTN06503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four **16**

- a) Find cross correlation of sequence
 $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- b) Check whether the following systems are stable or not
 i) $y(n) = x(n)u(n)$ ii) $h(n) = \left(\frac{1}{2}\right)^n u(n)$
- c) Determine DFT of a sequence $x(n)$ if $x(n) = \{3, 5, 2, 3\}$.
- d) List the properties of DFT & explain circular convolution properties of DFT.
- e) Calculate 4-point DFT values of the sequence $\cos(n * \pi/2)$ using DIT, FFT Algorithm.

Q.3 Attempt any two **12**

- a) Find DFT of the sequence $x(n) = \{1, 2, 3, 4, 4, 3, 2, 1\}$ using FFT algorithm.
- b) Find linear convolution Using overlap add method, of the following sequence
 $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- c) Find circular convolution of two finite duration sequence
 $x(n) = \{1, -1, -6, 3, -1, 5\}$ $h(n) = \{1, 2, 3, 1\}$

Section – II

Q.4 Attempt any Four **16**

- a) Explain windowing technique for designing FIR filter?
- b) What is warping effect? What is its effect on magnitude and phase response?
- c) For analog transfer function

$$H(s) = \frac{2}{(s+1)(s+2)}$$

Determine $H(Z)$ using impulse invariant transformation with $T=1$ sec.

- d) Determine FIR filter coefficients for direct form, structure whose lattice coefficients
 Are $k_1 = \frac{1}{3}$; $k_2 = \frac{1}{2}$; $k_3 = \frac{1}{5}$

Q.5 Attempt any two

12

- a) For analog transfer function

$$H(s) = \frac{2}{(s+5)(s+3)}$$

Determine $H(Z)$ using Bilinear transformation with $T=1$ sec.

- b) Design seven coefficients FIR LPF using frequency sampling method with following specifications

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$

- c) Explain the application of DSP in radar signal processing.

Seat No.	
----------	--

Set

P

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives.**14**

- 1) Cross elasticity of demand between tea and sugar is _____.
 - a) Positive
 - b) Zero
 - c) Infinity
 - d) Negative
- 2) Two major functions of a Managerial Economist are _____ and _____.
 - a) Decision-making Forward Planning
 - b) Forecasting, Planning
 - c) Revenue generation, Marketing
 - d) Staff recruitment, Salary planning
- 3) Implicit costs are _____.
 - a) Equal to total fixed costs
 - b) Comprised entirely of variable costs
 - c) "payments" for self-employed resources
 - d) Always greater in the short run than in the long run
- 4) Which is/are determinants of Supply?
 - a) Price of the Commodity
 - b) State of Technology
 - c) Cost of Production
 - d) All the above
- 5) The horizontal demand curve for a commodity shows that its demand is _____.
 - a) Perfectly elastic
 - b) Highly elastic
 - c) Perfectly inelastic
 - d) Moderately elastic
- 6) The elasticity of demand for a product will be higher _____.
 - a) The more available are substitutes for that product
 - b) The more its buyers demand loyalty
 - c) The more the product is considered a necessity by its buyers
 - d) All of the above
- 7) Demand for a commodity is elastic when it has _____.
 - a) Only one use
 - b) Uses which cannot be postponed
 - c) Many uses
 - d) Uses very essential for the consumer

- 8) _____ means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences.
- a) Demand planning
 - b) Demand forecasting
 - c) Demand analysis
 - d) Demand estimation
- 9) The utility may be defined as _____.
- a) The desire for a commodity
 - b) The usefulness of a commodity
 - c) The necessity of a commodity
 - d) The power of a commodity to satisfy wants
- 10) Perfect competition is characterized by _____.
- a) Large number of buyers and sellers
 - b) Homogeneous product
 - c) Free entry and exit of firms
 - d) All the above
- 11) Variable costs are _____.
- a) sunk costs
 - b) multiplied by fixed costs
 - c) costs that change with the level of production
 - d) defined as the change in total cost resulting from the production of an additional unit of output
- 12) The reason the marginal cost curve eventually increases as output increases for the typical firm is because _____.
- a) of diseconomies of scale
 - b) of minimum efficient scale
 - c) of the law of diminishing returns
 - d) normal profit exceeds economic
- 13) Product differentiation is an important feature of _____.
- a) Perfect competition
 - b) Monopolistic competition
 - c) Monopoly
 - d) None of these
- 14) Opportunity cost means _____.
- a) The accounting cost minus the marginal benefit
 - b) The highest-valued alternative forgone
 - c) The monetary costs of an activity
 - d) The accounting cost minus the marginal cost

Seat No.	
-----------------	--

Set P

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)**

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four questions. 16

- a) Discuss scope and nature of Managerial Economist.
- b) How is Managerial economics different from traditional economic?
- c) Explain the following terms
 - i) Demand ii) Supply
 - iii) Price ceiling iv) Market Equilibrium
- d) Explain the price - demand relationship with suitable examples.
- e) Explain the concept of Income elasticity of demand.

Q.3 Attempt any Two questions. 12

- a) What are the chief characteristics of Managerial Economics?
- b) What is Market Equilibrium? Explain the changes of demand and supply on Market Equilibrium.
- c) Explain the concept of Elasticity of demand in detail.

Section – II

Q.4 Attempt any Four questions: 16

- a) What is demand forecasting? What are the factors affecting demand forecasting?
- b) Describe survey methods of demand forecasting.
- c) Explain the following costs of production
 - i) Explicit and Implicit costs ii) Short run and Long run cost
- d) Explain the degree of competition in market.
- e) Explain Linear regression method of demand forecasting.

Q.5 Attempt any Two questions: 12

- a) Draw and explain break even analysis curve. What is profit margin of safety?
- b) Explain in details various costs involved in production.
- c) What is market? Explain various types of market structures with examples.

Seat No.	
-------------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives.**14**

- 1) _____ means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences.
 - a) Demand planning
 - b) Demand forecasting
 - c) Demand analysis
 - d) Demand estimation
- 2) The utility may be defined as _____.
 - a) The desire for a commodity
 - b) The usefulness of a commodity
 - c) The necessity of a commodity
 - d) The power of a commodity to satisfy wants
- 3) Perfect competition is characterized by _____.
 - a) Large number of buyers and sellers
 - b) Homogeneous product
 - c) Free entry and exit of firms
 - d) All the above
- 4) Variable costs are _____.
 - a) sunk costs
 - b) multiplied by fixed costs
 - c) costs that change with the level of production
 - d) defined as the change in total cost resulting from the production of an additional unit of output
- 5) The reason the marginal cost curve eventually increases as output increases for the typical firm is because _____.
 - a) of diseconomies of scale
 - b) of minimum efficient scale
 - c) of the law of diminishing returns
 - d) normal profit exceeds economic
- 6) Product differentiation is an important feature of _____.
 - a) Perfect competition
 - b) Monopolistic competition
 - c) Monopoly
 - d) None of these

- 7) Opportunity cost means _____.
a) The accounting cost minus the marginal benefit
b) The highest-valued alternative forgone
c) The monetary costs of an activity
d) The accounting cost minus the marginal cost
- 8) Cross elasticity of demand between tea and sugar is _____.
a) Positive
b) Zero
c) Infinity
d) Negative
- 9) Two major functions of a Managerial Economist are _____ and _____.
a) Decision-making Forward Planning
b) Forecasting, Planning
c) Revenue generation, Marketing
d) Staff recruitment, Salary planning
- 10) Implicit costs are _____.
a) Equal to total fixed costs
b) Comprised entirely of variable costs
c) "payments" for self-employed resources
d) Always greater in the short run than in the long run
- 11) Which is/are determinants of Supply?
a) Price of the Commodity
b) State of Technology
c) Cost of Production
d) All the above
- 12) The horizontal demand curve for a commodity shows that its demand is _____.
a) Perfectly elastic
b) Highly elastic
c) Perfectly inelastic
d) Moderately elastic
- 13) The elasticity of demand for a product will be higher _____.
a) The more available are substitutes for that product
b) The more its buyers demand loyalty
c) The more the product is considered a necessity by its buyers
d) All of the above
- 14) Demand for a commodity is elastic when it has _____.
a) Only one use
b) Uses which cannot be postponed
c) Many uses
d) Uses very essential for the consumer

Seat No.	
-------------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four questions. 16

- a) Discuss scope and nature of Managerial Economist.
- b) How is Managerial economics different from traditional economic?
- c) Explain the following terms
 - i) Demand
 - ii) Supply
 - iii) Price ceiling
 - iv) Market Equilibrium
- d) Explain the price - demand relationship with suitable examples.
- e) Explain the concept of Income elasticity of demand.

Q.3 Attempt any Two questions. 12

- a) What are the chief characteristics of Managerial Economics?
- b) What is Market Equilibrium? Explain the changes of demand and supply on Market Equilibrium.
- c) Explain the concept of Elasticity of demand in detail.

Section – II

Q.4 Attempt any Four questions: 16

- a) What is demand forecasting? What are the factors affecting demand forecasting?
- b) Describe survey methods of demand forecasting.
- c) Explain the following costs of production
 - i) Explicit and Implicit costs
 - ii) Short run and Long run cost
- d) Explain the degree of competition in market.
- e) Explain Linear regression method of demand forecasting.

Q.5 Attempt any Two questions: 12

- a) Draw and explain break even analysis curve. What is profit margin of safety?
- b) Explain in details various costs involved in production.
- c) What is market? Explain various types of market structures with examples.

Seat No.	
-------------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives.**14**

- 1) Variable costs are _____.
 - a) sunk costs
 - b) multiplied by fixed costs
 - c) costs that change with the level of production
 - d) defined as the change in total cost resulting from the production of an additional unit of output
- 2) The reason the marginal cost curve eventually increases as output increases for the typical firm is because _____.
 - a) of diseconomies of scale
 - b) of minimum efficient scale
 - c) of the law of diminishing returns
 - d) normal profit exceeds economic
- 3) Product differentiation is an important feature of _____.

a) Perfect competition	b) Monopolistic competition
c) Monopoly	d) None of these
- 4) Opportunity cost means _____.
 - a) The accounting cost minus the marginal benefit
 - b) The highest-valued alternative forgone
 - c) The monetary costs of an activity
 - d) The accounting cost minus the marginal cost
- 5) Cross elasticity of demand between tea and sugar is _____.

a) Positive	b) Zero
c) Infinity	d) Negative
- 6) Two major functions of a Managerial Economist are _____ and _____.
 - a) Decision-making Forward Planning
 - b) Forecasting, Planning
 - c) Revenue generation, Marketing
 - d) Staff recruitment, Salary planning

- 7) Implicit costs are _____.
a) Equal to total fixed costs
b) Comprised entirely of variable costs
c) "payments" for self-employed resources
d) Always greater in the short run than in the long run
- 8) Which is/are determinants of Supply?
a) Price of the Commodity b) State of Technology
c) Cost of Production d) All the above
- 9) The horizontal demand curve for a commodity shows that its demand is _____.
a) Perfectly elastic b) Highly elastic
c) Perfectly inelastic d) Moderately elastic
- 10) The elasticity of demand for a product will be higher _____.
a) The more available are substitutes for that product
b) The more its buyers demand loyalty
c) The more the product is considered a necessity by its buyers
d) All of the above
- 11) Demand for a commodity is elastic when it has _____.
a) Only one use
b) Uses which cannot be postponed
c) Many uses
d) Uses very essential for the consumer
- 12) _____ means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences.
a) Demand planning b) Demand forecasting
c) Demand analysis d) Demand estimation
- 13) The utility may be defined as _____.
a) The desire for a commodity
b) The usefulness of a commodity
c) The necessity of a commodity
d) The power of a commodity to satisfy wants
- 14) Perfect competition is characterized by _____.
a) Large number of buyers and sellers
b) Homogeneous product
c) Free entry and exit of firms
d) All the above

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four questions. 16

- a) Discuss scope and nature of Managerial Economist.
- b) How is Managerial economics different from traditional economic?
- c) Explain the following terms
 - i) Demand
 - ii) Supply
 - iii) Price ceiling
 - iv) Market Equilibrium
- d) Explain the price - demand relationship with suitable examples.
- e) Explain the concept of Income elasticity of demand.

Q.3 Attempt any Two questions. 12

- a) What are the chief characteristics of Managerial Economics?
- b) What is Market Equilibrium? Explain the changes of demand and supply on Market Equilibrium.
- c) Explain the concept of Elasticity of demand in detail.

Section – II

Q.4 Attempt any Four questions: 16

- a) What is demand forecasting? What are the factors affecting demand forecasting?
- b) Describe survey methods of demand forecasting.
- c) Explain the following costs of production
 - i) Explicit and Implicit costs
 - ii) Short run and Long run cost
- d) Explain the degree of competition in market.
- e) Explain Linear regression method of demand forecasting.

Q.5 Attempt any Two questions: 12

- a) Draw and explain break even analysis curve. What is profit margin of safety?
- b) Explain in details various costs involved in production.
- c) What is market? Explain various types of market structures with examples.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives.**14**

- 1) The elasticity of demand for a product will be higher _____.
 - a) The more available are substitutes for that product
 - b) The more its buyers demand loyalty
 - c) The more the product is considered a necessity by its buyers
 - d) All of the above
- 2) Demand for a commodity is elastic when it has _____.
 - a) Only one use
 - b) Uses which cannot be postponed
 - c) Many uses
 - d) Uses very essential for the consumer
- 3) _____ means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences.
 - a) Demand planning
 - b) Demand forecasting
 - c) Demand analysis
 - d) Demand estimation
- 4) The utility may be defined as _____.
 - a) The desire for a commodity
 - b) The usefulness of a commodity
 - c) The necessity of a commodity
 - d) The power of a commodity to satisfy wants
- 5) Perfect competition is characterized by _____.
 - a) Large number of buyers and sellers
 - b) Homogeneous product
 - c) Free entry and exit of firms
 - d) All the above
- 6) Variable costs are _____.
 - a) sunk costs
 - b) multiplied by fixed costs
 - c) costs that change with the level of production
 - d) defined as the change in total cost resulting from the production of an additional unit of output

- 7) The reason the marginal cost curve eventually increases as output increases for the typical firm is because _____.
a) of diseconomies of scale
b) of minimum efficient scale
c) of the law of diminishing returns
d) normal profit exceeds economic
- 8) Product differentiation is an important feature of _____.
a) Perfect competition
b) Monopolistic competition
c) Monopoly
d) None of these
- 9) Opportunity cost means _____.
a) The accounting cost minus the marginal benefit
b) The highest-valued alternative forgone
c) The monetary costs of an activity
d) The accounting cost minus the marginal cost
- 10) Cross elasticity of demand between tea and sugar is _____.
a) Positive
b) Zero
c) Infinity
d) Negative
- 11) Two major functions of a Managerial Economist are _____ and _____.
a) Decision-making Forward Planning
b) Forecasting, Planning
c) Revenue generation, Marketing
d) Staff recruitment, Salary planning
- 12) Implicit costs are _____.
a) Equal to total fixed costs
b) Comprised entirely of variable costs
c) "payments" for self-employed resources
d) Always greater in the short run than in the long run
- 13) Which is/are determinants of Supply?
a) Price of the Commodity
b) State of Technology
c) Cost of Production
d) All the above
- 14) The horizontal demand curve for a commodity shows that its demand is _____.
a) Perfectly elastic
b) Highly elastic
c) Perfectly inelastic
d) Moderately elastic

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Managerial Economics (BTN06511)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four questions. 16

- a) Discuss scope and nature of Managerial Economist.
- b) How is Managerial economics different from traditional economic?
- c) Explain the following terms
 - i) Demand
 - ii) Supply
 - iii) Price ceiling
 - iv) Market Equilibrium
- d) Explain the price - demand relationship with suitable examples.
- e) Explain the concept of Income elasticity of demand.

Q.3 Attempt any Two questions. 12

- a) What are the chief characteristics of Managerial Economics?
- b) What is Market Equilibrium? Explain the changes of demand and supply on Market Equilibrium.
- c) Explain the concept of Elasticity of demand in detail.

Section – II

Q.4 Attempt any Four questions: 16

- a) What is demand forecasting? What are the factors affecting demand forecasting?
- b) Describe survey methods of demand forecasting.
- c) Explain the following costs of production
 - i) Explicit and Implicit costs
 - ii) Short run and Long run cost
- d) Explain the degree of competition in market.
- e) Explain Linear regression method of demand forecasting.

Q.5 Attempt any Two questions: 12

- a) Draw and explain break even analysis curve. What is profit margin of safety?
- b) Explain in details various costs involved in production.
- c) What is market? Explain various types of market structures with examples.

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ / Objective type questions 14

- 1) The PERT in project management means program evaluation and _____ technique.

a) resource	b) reconciliation
c) reconsideration	d) review
- 2) Which of the following is (are) project(s)?
 - a) building a new house
 - b) creating a new computer software
 - c) launching a new product for a business
 - d) All of the above
- 3) In which of the following project phases is the project schedule developed?

a) Conceptual	b) Planning
c) Implementation	d) Design
- 4) The entire process of a project may be considered to be made up on number of sub process placed in different stage called the _____.
 - a) Technical key resources
 - b) Work key structure
 - c) Work Breakdown Structure (WBS).
 - d) None of the above
- 5) Network models have advantage in terms of project _____.

a) Planning	b) Scheduling
c) Controlling	d) All of these
- 6) A set of feasible solution to a Linear Programming Problem is _____.

a) convex	b) polygon
c) triangle	d) bold

- 7) Which of the following strategies means that the impact of the risk will be reduced?
- a) Avoidance strategies
 - b) Minimization strategies
 - c) Contingency plans
 - d) All of the mentioned
- 8) Graphical method, simplex method, and transportation method are concerned with _____.
- a) Break-even analysis
 - b) Value analysis
 - c) Linear programming
 - d) Queueing theory
- 9) OR uses models to help the management to determine its _____.
- a) Policies
 - b) Actions
 - c) Both a and b
 - d) None of the above
- 10) An assignment problem is solved to minimize the total processing time of four jobs (1, 2, 3 and 4) on four different machines such that each job is processed exactly by one machine and each machine processes exactly one job. The minimum total processing time is found to be 500 minutes. Due to a change in design, the processing time of job 4 on each machine has increased by 20 minutes. The revised minimum total processing time will be _____ minutes.
- a) 500
 - b) 580
 - c) 520
 - d) 600
- 11) Which of the following technique emphasizes transportation cost in the determination of facility location?
- a) Location rating factor technique
 - b) Transportation technique
 - c) Centre-of-gravity technique
 - d) Both (b) and (c)
- 12) Group replacement policy is most suitable for _____.
- a) Trucks
 - b) Infant machines
 - c) Street light bulbs
 - d) New cars
- 13) Replacement is said to be necessary if _____.
- a) Failure rate is increasing
 - b) Failure cost is increasing
 - c) Failure probability is increasing
 - d) Any of these
- 14) Which statement characterizes standard form of a linear programming problem?
- a) Constraints are given by inequalities of any type
 - b) Constraints are given by a set of linear equations
 - c) Constraints are given only by inequalities of \geq type
 - d) Constraints are given only by inequalities of \leq type

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Solve any Four** **16**
- a) What is a project? State the characteristics of the project.
 - b) Explain the concept of top-down and bottom-up budgeting techniques.
 - c) Explain the significance of networking and scheduling in project management.
 - d) What are the steps involved in dealing with the risks? Discuss in detail.
 - e) What is the significance of risk management? What are the categories of risk?
- Q.3 Solve any Two** **12**
- a) What is the work breakdown structure? List out the tasks involved in constructing a house and draw its work breakdown structure.
 - b) With the help of an example, explain GANTT chart and PERT chart.
 - c) What are the common project risks and how to prevent them? Explain in detail.

Section – II

- Q.4 Solve any Four** **16**
- a) With an example describe the mathematical and iconic model in OR.
 - b) State the limitations of Linear Programming Problem.
 - c) Discuss different categories of replacement problems.
 - d) Why is replacement of items required? Distinguish between individual replacement and group replacement policies.
 - e) Explain the procedure for making location decisions.
- Q.5 Solve any Two:** **12**
- a) What are the three scientific methods used in Operation Research? Explain in detail.
 - b)
 - i) What are the advantages of the Linear Programming approach?
 - ii) A small manufacturer employs 5 skilled men and 10 semi-skilled men and makes an article in two qualities, a deluxe model and an ordinary model. The making of a deluxe model requires 2 hrs work by a skilled man and 2 hrs work by a semi-skilled man. The ordinary model requires 1 hr work by a skilled man and 3 hrs work by a semi-skilled man. By union rules no man can work more than 8 hrs per day. The manufacturer's clear profit of the deluxe model is Rs. 10/- and of the ordinary model is Rs. 8/-. Formulate the model of the problem.

- c) Suggest optimum Assignment of 4 workers A, B, C, D to 4 jobs I, II III, IV. The time taken by different workers in completing the different jobs is given below.

	Jobs			
Workers	I	II	III	IV
A	8	10	12	16
B	11	11	15	8
C	9	6	5	14
D	15	4	9	7

Seat No.	
----------	--

Set **Q**

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)**

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicate full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ / Objective type questions**14**

- 1) Graphical method, simplex method, and transportation method are concerned with _____.

a) Break-even analysis	b) Value analysis
c) Linear programming	d) Queueing theory
- 2) OR uses models to help the management to determine its _____.

a) Policies	b) Actions
c) Both a and b	d) None of the above
- 3) An assignment problem is solved to minimize the total processing time of four jobs (1, 2, 3 and 4) on four different machines such that each job is processed exactly by one machine and each machine processes exactly one job. The minimum total processing time is found to be 500 minutes. Due to a change in design, the processing time of job 4 on each machine has increased by 20 minutes. The revised minimum total processing time will be _____ minutes.

a) 500	b) 580
c) 520	d) 600
- 4) Which of the following technique emphasizes transportation cost in the determination of facility location?

a) Location rating factor technique	b) Transportation technique
c) Centre-of-gravity technique	d) Both (b) and (c)
- 5) Group replacement policy is most suitable for _____.

a) Trucks	b) Infant machines
c) Street light bulbs	d) New cars
- 6) Replacement is said to be necessary if _____.

a) Failure rate is increasing	b) Failure cost is increasing
c) Failure probability is increasing	d) Any of these

- 7) Which statement characterizes standard form of a linear programming problem?
a) Constraints are given by inequalities of any type
b) Constraints are given by a set of linear equations
c) Constraints are given only by inequalities of \geq type
d) Constraints are given only by inequalities of \leq type
- 8) The PERT in project management means program evaluation and _____ technique.
a) resource
b) reconciliation
c) reconsideration
d) review
- 9) Which of the following is (are) project(s)?
a) building a new house
b) creating a new computer software
c) launching a new product for a business
d) All of the above
- 10) In which of the following project phases is the project schedule developed?
a) Conceptual
b) Planning
c) Implementation
d) Design
- 11) The entire process of a project may be considered to be made up on number of sub process placed in different stage called the _____.
a) Technical key resources
b) Work key structure
c) Work Breakdown Structure (WBS).
d) None of the above
- 12) Network models have advantage in terms of project _____.
a) Planning
b) Scheduling
c) Controlling
d) All of these
- 13) A set of feasible solution to a Linear Programming Problem is _____.
a) convex
b) polygon
c) triangle
d) bold
- 14) Which of the following strategies means that the impact of the risk will be reduced?
a) Avoidance strategies
b) Minimization strategies
c) Contingency plans
d) All of the mentioned

Seat No.	
-------------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Solve any Four** **16**
- a) What is a project? State the characteristics of the project.
 - b) Explain the concept of top-down and bottom-up budgeting techniques.
 - c) Explain the significance of networking and scheduling in project management.
 - d) What are the steps involved in dealing with the risks? Discuss in detail.
 - e) What is the significance of risk management? What are the categories of risk?
- Q.3 Solve any Two** **12**
- a) What is the work breakdown structure? List out the tasks involved in constructing a house and draw its work breakdown structure.
 - b) With the help of an example, explain GANTT chart and PERT chart.
 - c) What are the common project risks and how to prevent them? Explain in detail.

Section – II

- Q.4 Solve any Four** **16**
- a) With an example describe the mathematical and iconic model in OR.
 - b) State the limitations of Linear Programming Problem.
 - c) Discuss different categories of replacement problems.
 - d) Why is replacement of items required? Distinguish between individual replacement and group replacement policies.
 - e) Explain the procedure for making location decisions.
- Q.5 Solve any Two:** **12**
- a) What are the three scientific methods used in Operation Research? Explain in detail.
 - b)
 - i) What are the advantages of the Linear Programming approach?
 - ii) A small manufacturer employs 5 skilled men and 10 semi-skilled men and makes an article in two qualities, a deluxe model and an ordinary model. The making of a deluxe model requires 2 hrs work by a skilled man and 2 hrs work by a semi-skilled man. The ordinary model requires 1 hr work by a skilled man and 3 hrs work by a semi-skilled man. By union rules no man can work more than 8 hrs per day. The manufacturer's clear profit of the deluxe model is Rs. 10/- and of the ordinary model is Rs. 8/-. Formulate the model of the problem.

- c) Suggest optimum Assignment of 4 workers A, B, C, D to 4 jobs I, II III, IV. The time taken by different workers in completing the different jobs is given below.

	Jobs			
Workers	I	II	III	IV
A	8	10	12	16
B	11	11	15	8
C	9	6	5	14
D	15	4	9	7

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries two marks.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

- Q.1 MCQ / Objective type questions** **14**
- 1) Which of the following technique emphasizes transportation cost in the determination of facility location?

a) Location rating factor technique	b) Transportation technique
c) Centre-of-gravity technique	d) Both (b) and (c)
 - 2) Group replacement policy is most suitable for _____.

a) Trucks	b) Infant machines
c) Street light bulbs	d) New cars
 - 3) Replacement is said to be necessary if _____.

a) Failure rate is increasing	b) Failure cost is increasing
c) Failure probability is increasing	d) Any of these
 - 4) Which statement characterizes standard form of a linear programming problem?

a) Constraints are given by inequalities of any type	b) Constraints are given by a set of linear equations
c) Constraints are given only by inequalities of \geq type	d) Constraints are given only by inequalities of \leq type
 - 5) The PERT in project management means program evaluation and _____ technique.

a) resource	b) reconciliation
c) reconsideration	d) review
 - 6) Which of the following is (are) project(s)?

a) building a new house	b) creating a new computer software
c) launching a new product for a business	d) All of the above
 - 7) In which of the following project phases is the project schedule developed?

a) Conceptual	b) Planning
c) Implementation	d) Design

- 8) The entire process of a project may be considered to be made up on number of sub process placed in different stage called the _____.
a) Technical key resources
b) Work key structure
c) Work Breakdown Structure (WBS).
d) None of the above
- 9) Network models have advantage in terms of project _____.
a) Planning
b) Scheduling
c) Controlling
d) All of these
- 10) A set of feasible solution to a Linear Programming Problem is _____.
a) convex
b) polygon
c) triangle
d) bold
- 11) Which of the following strategies means that the impact of the risk will be reduced?
a) Avoidance strategies
b) Minimization strategies
c) Contingency plans
d) All of the mentioned
- 12) Graphical method, simplex method, and transportation method are concerned with _____.
a) Break-even analysis
b) Value analysis
c) Linear programming
d) Queueing theory
- 13) OR uses models to help the management to determine its _____.
a) Policies
b) Actions
c) Both a and b
d) None of the above
- 14) An assignment problem is solved to minimize the total processing time of four jobs (1, 2, 3 and 4) on four different machines such that each job is processed exactly by one machine and each machine processes exactly one job. The minimum total processing time is found to be 500 minutes. Due to a change in design, the processing time of job 4 on each machine has increased by 20 minutes. The revised minimum total processing time will be _____ minutes.
a) 500
b) 580
c) 520
d) 600

Seat No.	
-------------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Solve any Four** **16**
- a) What is a project? State the characteristics of the project.
 - b) Explain the concept of top-down and bottom-up budgeting techniques.
 - c) Explain the significance of networking and scheduling in project management.
 - d) What are the steps involved in dealing with the risks? Discuss in detail.
 - e) What is the significance of risk management? What are the categories of risk?
- Q.3 Solve any Two** **12**
- a) What is the work breakdown structure? List out the tasks involved in constructing a house and draw its work breakdown structure.
 - b) With the help of an example, explain GANTT chart and PERT chart.
 - c) What are the common project risks and how to prevent them? Explain in detail.

Section – II

- Q.4 Solve any Four** **16**
- a) With an example describe the mathematical and iconic model in OR.
 - b) State the limitations of Linear Programming Problem.
 - c) Discuss different categories of replacement problems.
 - d) Why is replacement of items required? Distinguish between individual replacement and group replacement policies.
 - e) Explain the procedure for making location decisions.
- Q.5 Solve any Two:** **12**
- a) What are the three scientific methods used in Operation Research? Explain in detail.
 - b)
 - i) What are the advantages of the Linear Programming approach?
 - ii) A small manufacturer employs 5 skilled men and 10 semi-skilled men and makes an article in two qualities, a deluxe model and an ordinary model. The making of a deluxe model requires 2 hrs work by a skilled man and 2 hrs work by a semi-skilled man. The ordinary model requires 1 hr work by a skilled man and 3 hrs work by a semi-skilled man. By union rules no man can work more than 8 hrs per day. The manufacturer's clear profit of the deluxe model is Rs. 10/- and of the ordinary model is Rs. 8/-. Formulate the model of the problem.

- c) Suggest optimum Assignment of 4 workers A, B, C, D to 4 jobs I, II III, IV. The time taken by different workers in completing the different jobs is given below.

	Jobs			
Workers	I	II	III	IV
A	8	10	12	16
B	11	11	15	8
C	9	6	5	14
D	15	4	9	7

Seat No.	
-------------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Project Management and Operation Research (BTN06512)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever needed & mention it clearly.

Section – I

- Q.2 Solve any Four** **16**
- a) What is a project? State the characteristics of the project.
 - b) Explain the concept of top-down and bottom-up budgeting techniques.
 - c) Explain the significance of networking and scheduling in project management.
 - d) What are the steps involved in dealing with the risks? Discuss in detail.
 - e) What is the significance of risk management? What are the categories of risk?

- Q.3 Solve any Two** **12**
- a) What is the work breakdown structure? List out the tasks involved in constructing a house and draw its work breakdown structure.
 - b) With the help of an example, explain GANTT chart and PERT chart.
 - c) What are the common project risks and how to prevent them? Explain in detail.

Section – II

- Q.4 Solve any Four** **16**
- a) With an example describe the mathematical and iconic model in OR.
 - b) State the limitations of Linear Programming Problem.
 - c) Discuss different categories of replacement problems.
 - d) Why is replacement of items required? Distinguish between individual replacement and group replacement policies.
 - e) Explain the procedure for making location decisions.

- Q.5 Solve any Two:** **12**
- a) What are the three scientific methods used in Operation Research? Explain in detail.
 - b)
 - i) What are the advantages of the Linear Programming approach?
 - ii) A small manufacturer employs 5 skilled men and 10 semi-skilled men and makes an article in two qualities, a deluxe model and an ordinary model. The making of a deluxe model requires 2 hrs work by a skilled man and 2 hrs work by a semi-skilled man. The ordinary model requires 1 hr work by a skilled man and 3 hrs work by a semi-skilled man. By union rules no man can work more than 8 hrs per day. The manufacturer's clear profit of the deluxe model is Rs. 10/- and of the ordinary model is Rs. 8/-. Formulate the model of the problem.

- c) Suggest optimum Assignment of 4 workers A, B, C, D to 4 jobs I, II III, IV. The time taken by different workers in completing the different jobs is given below.

	Jobs			
Workers	I	II	III	IV
A	8	10	12	16
B	11	11	15	8
C	9	6	5	14
D	15	4	9	7

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is managing any area of business, whether it is production, marketing, accounting, human resources or any other functions constitute a whole range of activities covering formal and informal means of planning, implementing and control.

a) Business Decisions	b) Business Ethics
c) Business Situations	d) Business Ethics Management
- 2) _____ is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

a) Accountability	b) Sustainability
c) Globalization	d) All of these
- 3) _____ are moral philosophy or ethics concerned with criteria of what is morally rights and wrong.

a) Normative Ethical Theories	b) Descriptive Ethics Theories
c) Traditional Ethics Theories	d) All of these
- 4) Model of ethical decision-making seek to represent things _____.

a) The different stages in decision-making	b) The different influences on that process
c) Both a and b	d) None of these
- 5) Which is a stage of Ethical Decision Making?

a) Make Moral Judgement	b) Individual Factors
c) Situational Factors	d) All of these
- 6) What is full form of CSR?

a) Corporate Social Reporting	b) Corporate Social Research
c) Corporate Social Responsibility	d) None of these
- 7) Which responsibility makes corporations to do what is right and fair even when they are not compelled to do so by the legal framework?

a) Ethical Responsibility	b) Legal Responsibility
c) Philanthropic Responsibility	d) Economic Responsibility

Seat No.	
-----------------	--

Set P

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)**

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any four of the following. 16**
- a) Explain Sustainability - a key Context for Business Ethics.
 - b) Explain the need of business ethics.
 - c) Illustrate the methods of assessing ethical performance.
 - d) What are key features of Corporate?
 - e) Explain code of ethics with some practical examples.
- Q.3 Solve any two of the following. 12**
- a) Explain the components of business ethics management.
 - b) What is stakeholder theory of firm?
 - c) Explain in detail Normative Ethical Theories.

Section – II

- Q.4 Solve any four of the following. 16**
- a) Explain the ethical issues in firm-employee relationship.
 - b) Explain the functions of CSO.
 - c) Write a short note on marketing & consumer.
 - d) List & explain the ethical issues in CSO.
 - e) Write a short note on globalization-business government relation.
- Q.5 Answer any two questions. 12**
- a) Explain the concept of Data identity and security.
 - b) Explain the Ethics of pollution control.
 - c) What are Ethical challenges of globalization?

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ the application of rules and procedures to people in a consistent and avoiding arbitrarily decision-making and without discrimination on bases other than merit.
 - a) Discrimination
 - b) Employees Privacy
 - c) Right and Duties
 - d) Due Process and Lay off
- 2) The claim that employees should also have a certain degree influence on their tasks, their job environmental and their company goals that is a _____.
 - a) Discrimination
 - b) Employee Privacy
 - c) Right to participation
 - d) Due Process and Lay off
- 3) CSO stands for what?
 - a) Civil Society Organization
 - b) Consumer Society Organization
 - c) Central Statistics Office
 - d) None of these
- 4) _____ seek to punish the target company for its actions. Therefore, rather than communicating displeasure, the boycotters actively seek to cause the firm harm, usually by aiming for significant erosion of sales.
 - a) Instrumental Boycotts
 - b) Catalytic Boycott
 - c) Expressive Boycott
 - d) Punitive Boycott
- 5) Customer is stakeholder of organization.
 - a) True
 - b) False
- 6) _____ is the long-term maintenance of the system according to environmental and economical and Social consideration.
 - a) Security
 - b) Sustainability
 - c) Business Ethics
 - d) None of above
- 7) Functions of Civil Society are _____.
 - a) Protection
 - b) Monitoring
 - c) Social Cohesion
 - d) All of above

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)**

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any four of the following. 16**
- a) Explain Sustainability - a key Context for Business Ethics.
 - b) Explain the need of business ethics.
 - c) Illustrate the methods of assessing ethical performance.
 - d) What are key features of Corporate?
 - e) Explain code of ethics with some practical examples.
- Q.3 Solve any two of the following. 12**
- a) Explain the components of business ethics management.
 - b) What is stakeholder theory of firm?
 - c) Explain in detail Normative Ethical Theories.

Section – II

- Q.4 Solve any four of the following. 16**
- a) Explain the ethical issues in firm-employee relationship.
 - b) Explain the functions of CSO.
 - c) Write a short note on marketing & consumer.
 - d) List & explain the ethical issues in CSO.
 - e) Write a short note on globalization-business government relation.
- Q.5 Answer any two questions. 12**
- a) Explain the concept of Data identity and security.
 - b) Explain the Ethics of pollution control.
 - c) What are Ethical challenges of globalization?

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ seek to punish the target company for its actions. Therefore, rather than communicating displeasure, the boycotters actively seek to cause the firm harm, usually by aiming for significant erosion of sales.

a) Instrumental Boycotts	b) Catalytic Boycott
c) Expressive Boycott	d) Punitive Boycott
- 2) Customer is stakeholder of organization.

a) True	b) False
---------	----------
- 3) _____ is the long-term maintenance of the system according to environmental and economical and Social consideration.

a) Security	b) Sustainability
c) Business Ethics	d) None of above
- 4) Functions of Civil Society are _____.

a) Protection	b) Monitoring
c) Social Cohesion	d) All of above
- 5) _____ is managing any area of business, whether it is production, marketing, accounting, human resources or any other functions constitute a whole range of activities covering formal and informal means of planning, implementing and control.

a) Business Decisions	b) Business Ethics
c) Business Situations	d) Business Ethics Management
- 6) _____ is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

a) Accountability	b) Sustainability
c) Globalization	d) All of these
- 7) _____ are moral philosophy or ethics concerned with criteria of what is morally rights and wrong.

a) Normative Ethical Theories	b) Descriptive Ethics Theories
c) Traditional Ethics Theories	d) All of these

- 8) Model of ethical decision-making seek to represent things _____.
a) The different stages in decision-making
b) The different influences on that process
c) Both a and b
d) None of these
- 9) Which is a stage of Ethical Decision Making?
a) Make Moral Judgement b) Individual Factors
c) Situational Factors d) All of these
- 10) What is full form of CSR?
a) Corporate Social Reporting b) Corporate Social Research
c) Corporate Social Responsibility d) None of these
- 11) Which responsibility makes corporations to do what is right and fair even when they are not compelled to do so by the legal framework?
a) Ethical Responsibility b) Legal Responsibility
c) Philanthropic Responsibility d) Economic Responsibility
- 12) _____ the application of rules and procedures to people in a consistent and avoiding arbitrarily decision-making and without discrimination on bases other than merit.
a) Discrimination b) Employees Privacy
c) Right and Duties d) Due Process and Lay off
- 13) The claim that employees should also have a certain degree influence on their tasks, their job environmental and their company goals that is a _____.
a) Discrimination b) Employee Privacy
c) Right to participation d) Due Process and Lay off
- 14) CSO stands for what?
a) Civil Society Organization b) Consumer Society Organization
c) Central Statistics Office d) None of these

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any four of the following. 16**
- a) Explain Sustainability - a key Context for Business Ethics.
 - b) Explain the need of business ethics.
 - c) Illustrate the methods of assessing ethical performance.
 - d) What are key features of Corporate?
 - e) Explain code of ethics with some practical examples.
- Q.3 Solve any two of the following. 12**
- a) Explain the components of business ethics management.
 - b) What is stakeholder theory of firm?
 - c) Explain in detail Normative Ethical Theories.

Section – II

- Q.4 Solve any four of the following. 16**
- a) Explain the ethical issues in firm-employee relationship.
 - b) Explain the functions of CSO.
 - c) Write a short note on marketing & consumer.
 - d) List & explain the ethical issues in CSO.
 - e) Write a short note on globalization-business government relation.
- Q.5 Answer any two questions. 12**
- a) Explain the concept of Data identity and security.
 - b) Explain the Ethics of pollution control.
 - c) What are Ethical challenges of globalization?

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is full form of CSR?

a) Corporate Social Reporting	b) Corporate Social Research
c) Corporate Social Responsibility	d) None of these
- 2) Which responsibility makes corporations to do what is right and fair even when they are not compelled to do so by the legal framework?

a) Ethical Responsibility	b) Legal Responsibility
c) Philanthropic Responsibility	d) Economic Responsibility
- 3) _____ the application of rules and procedures to people in a consistent and avoiding arbitrarily decision-making and without discrimination on bases other than merit.

a) Discrimination	b) Employees Privacy
c) Right and Duties	d) Due Process and Lay off
- 4) The claim that employees should also have a certain degree influence on their tasks, their job environmental and their company goals that is a _____.

a) Discrimination	b) Employee Privacy
c) Right to participation	d) Due Process and Lay off
- 5) CSO stands for what?

a) Civil Society Organization	b) Consumer Society Organization
c) Central Statistics Office	d) None of these
- 6) _____ seek to punish the target company for its actions. Therefore, rather than communicating displeasure, the boycotters actively seek to cause the firm harm, usually by aiming for significant erosion of sales.

a) Instrumental Boycotts	b) Catalytic Boycott
c) Expressive Boycott	d) Punitive Boycott
- 7) Customer is stakeholder of organization.

a) True	b) False
---------	----------

- 8) _____ is the long-term maintenance of the system according to environmental and economical and Social consideration.
- a) Security
 - b) Sustainability
 - c) Business Ethics
 - d) None of above
- 9) Functions of Civil Society are _____.
- a) Protection
 - b) Monitoring
 - c) Social Cohesion
 - d) All of above
- 10) _____ is managing any area of business, whether it is production, marketing, accounting, human resources or any other functions constitute a whole range of activities covering formal and informal means of planning, implementing and control.
- a) Business Decisions
 - b) Business Ethics
 - c) Business Situations
 - d) Business Ethics Management
- 11) _____ is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- a) Accountability
 - b) Sustainability
 - c) Globalization
 - d) All of these
- 12) _____ are moral philosophy or ethics concerned with criteria of what is morally rights and wrong.
- a) Normative Ethical Theories
 - b) Descriptive Ethics Theories
 - c) Traditional Ethics Theories
 - d) All of these
- 13) Model of ethical decision-making seek to represent things _____.
- a) The different stages in decision-making
 - b) The different influences on that process
 - c) Both a and b
 - d) None of these
- 14) Which is a stage of Ethical Decision Making?
- a) Make Moral Judgement
 - b) Individual Factors
 - c) Situational Factors
 - d) All of these

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Business Ethics (BTN06514)

Day & Date: Thursday, 16-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever needed and mention it clearly.

Section – I

- Q.2 Solve any four of the following. 16**
- a) Explain Sustainability - a key Context for Business Ethics.
 - b) Explain the need of business ethics.
 - c) Illustrate the methods of assessing ethical performance.
 - d) What are key features of Corporate?
 - e) Explain code of ethics with some practical examples.
- Q.3 Solve any two of the following. 12**
- a) Explain the components of business ethics management.
 - b) What is stakeholder theory of firm?
 - c) Explain in detail Normative Ethical Theories.

Section – II

- Q.4 Solve any four of the following. 16**
- a) Explain the ethical issues in firm-employee relationship.
 - b) Explain the functions of CSO.
 - c) Write a short note on marketing & consumer.
 - d) List & explain the ethical issues in CSO.
 - e) Write a short note on globalization-business government relation.
- Q.5 Answer any two questions. 12**
- a) Explain the concept of Data identity and security.
 - b) Explain the Ethics of pollution control.
 - c) What are Ethical challenges of globalization?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative from the options.

14

- 1) Which of the following search technique has AND/OR graph theory?

a) Greedy Best First Search	b) A*
c) AO*	d) None of these
- 2) What are the types of entities covered in Ontology

a) Physical and abstract objects	b) time and locations
c) Actions and events	d) All
- 3) Propositional Logic has _____ output.

a) Either True or False	b) Both True and False
c) Quantitative Value	d) None
- 4) Which of the following statement can be represented using the universal quantifier?

a) All bird fly	b) Some bird fly
c) Rohan is intelligent	d) Some men drink coffee
- 5) Which of the following cannot be handled by an intelligent agent

a) Learning	b) Decision Making
c) Uncertainties	d) None of these
- 6) "All bird fly" which of the following is referred as predicate in given sentence?

a) bird	b) fly
c) All	d) None of these
- 7) Probability always lies between?

a) 0 and 1	b) 0 and 100
c) 0 and infinity	d) -infinity to +infinity
- 8) Decision making involves utility theory?

a) Yes	b) No
c) Not always	d) None of above
- 9) Which of these is the best learning model suitable for an observable environment?

a) Supervised	b) Unsupervised
c) Both a & b	d) None

- 10)** AI is study of _____ Agents.
- a) Omniscience
 - b) Rational
 - c) Autonomy
 - d) None of these
- 11)** Which of following has task fully observable environment _____.
- a) Chess Game
 - b) Taxi Driver
 - c) Medicine Diagnosis
 - d) None of these
- 12)** In regards with informed search which statement is not TRUE?
- a) It has domain knowledge
 - b) It will increase the time complexity
 - c) it uses heuristic function
 - d) Greedy Best First Search Algorithm is type of informed search
- 13)** Which is an actuator in AI CAR agent application?
- a) Object detection sensor
 - b) Temperature sensor
 - c) Wheel Drive
 - d) None of these
- 14)** Which of the following best describes learning where the agent must also learn what to do
- a) Passive
 - b) Active
 - c) Unsupervised
 - d) All of these

Seat No.	
-----------------	--

Set	P
------------	----------

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of calculator is allowed
4) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four questions. 16**
- a) Explain any four applications of AI.
 - b) Explain any two types AI agents with diagram.
 - c) Explain Breadth first search algorithm with an example?
 - d) Explain what is Ontology with reference to AI.
 - e) What is constraint Satisfaction Problems? Explain with map colouring example?
- Q.3 Solve any two questions. 12**
- a) Explain the minimax algorithm with example.
 - b) Differentiate between A* and AO* Algorithm?
 - c) Write short note on knowledge representation and reasoning.

Section – II

- Q.4 Solve any Four questions. 16**
- a) Explain Bays rule in Probability?
 - b) Explain with two examples probabilistic inference.
 - c) Explain utility theory.
 - d) How decision making is done by a robot.
 - e) What are sequential decision problems.
- Q.5 Solve any two questions. 12**
- a) Explain Bayesian network with any two examples.
 - b) Differentiate between supervised and unsupervised learning.
 - c) Write a short note on Learning and knowledge acquisition.

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative from the options.

14

- 1) Decision making involves utility theory?
 - a) Yes
 - b) No
 - c) Not always
 - d) None of above
- 2) Which of these is the best learning model suitable for an observable environment?
 - a) Supervised
 - b) Unsupervised
 - c) Both a & b
 - d) None
- 3) AI is study of _____ Agents.
 - a) Omniscience
 - b) Rational
 - c) Autonomy
 - d) None of these
- 4) Which of following has task fully observable environment _____.
 - a) Chess Game
 - b) Taxi Driver
 - c) Medicine Diagnosis
 - d) None of these
- 5) In regards with informed search which statement is not TRUE?
 - a) It has domain knowledge
 - b) It will increase the time complexity
 - c) it uses heuristic function
 - d) Greedy Best First Search Algorithm is type of informed search
- 6) Which is an actuator in AI CAR agent application?
 - a) Object detection sensor
 - b) Temperature sensor
 - c) Wheel Drive
 - d) None of these
- 7) Which of the following best describes learning where the agent must also learn what to do
 - a) Passive
 - b) Active
 - c) Unsupervised
 - d) All of these
- 8) Which of the following search technique has AND/OR graph theory?
 - a) Greedy Best First Search
 - b) A*
 - c) AO*
 - d) None of these

- 9) What are the types of entities covered in Ontology
- a) Physical and abstract objects
 - b) time and locations
 - c) Actions and events
 - d) All
- 10) Propositional Logic has _____ output.
- a) Either True or False
 - b) Both True and False
 - c) Quantitative Value
 - d) None
- 11) Which of the following statement can be represented using the universal quantifier?
- a) All bird fly
 - b) Some bird fly
 - c) Rohan is intelligent
 - d) Some men drink coffee
- 12) Which of the following cannot be handled by an intelligent agent
- a) Learning
 - b) Decision Making
 - c) Uncertainties
 - d) None of these
- 13) "All bird fly" which of the following is referred as predicate in given sentence?
- a) bird
 - b) fly
 - c) All
 - d) None of these
- 14) Probability always lies between?
- a) 0 and 1
 - b) 0 and 100
 - c) 0 and infinity
 - d) -infinity to +infinity

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of calculator is allowed
4) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four questions. 16**
- a) Explain any four applications of AI.
 - b) Explain any two types AI agents with diagram.
 - c) Explain Breadth first search algorithm with an example?
 - d) Explain what is Ontology with reference to AI.
 - e) What is constraint Satisfaction Problems? Explain with map colouring example?
- Q.3 Solve any two questions. 12**
- a) Explain the minimax algorithm with example.
 - b) Differentiate between A* and AO* Algorithm?
 - c) Write short note on knowledge representation and reasoning.

Section – II

- Q.4 Solve any Four questions. 16**
- a) Explain Bays rule in Probability?
 - b) Explain with two examples probabilistic inference.
 - c) Explain utility theory.
 - d) How decision making is done by a robot.
 - e) What are sequential decision problems.
- Q.5 Solve any two questions. 12**
- a) Explain Bayesian network with any two examples.
 - b) Differentiate between supervised and unsupervised learning.
 - c) Write a short note on Learning and knowledge acquisition.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative from the options.

14

- 1) Which of following has task fully observable environment _____.
 - a) Chess Game
 - b) Taxi Driver
 - c) Medicle Dignosis
 - d) None of these
- 2) In regards with informed search which statement is not TRUE?
 - a) It has domain knowledge
 - b) It will increase the time complexity
 - c) it uses heuristic function
 - d) Greedy Best First Search Algorithm is type of informed search
- 3) Which is an actuator in AI CAR agent application?
 - a) Object detection sensor
 - b) Temperature sensor
 - c) Wheel Drive
 - d) None of these
- 4) Which of the following best describes learning where the agent must also learn what to do
 - a) Passive
 - b) Active
 - c) Unsupervised
 - d) All of these
- 5) Which of the following search technique has AND/OR graph theory?
 - a) Greedy Best First Search
 - b) A*
 - c) AO*
 - d) None of these
- 6) What are the types of entities covered in Ontology
 - a) Physical and abstract objects
 - b) time and locations
 - c) Actions and events
 - d) All
- 7) Propositional Logic has _____ output.
 - a) Either True or False
 - b) Both True and False
 - c) Quantitative Value
 - d) None
- 8) Which of the following statement can be represented using the universal quantifier?
 - a) All bird fly
 - b) Some bird fly
 - c) Rohan is intelligent
 - d) Some men drink coffee

- 9) Which of the following cannot be handled by an intelligent agent
a) Learning
b) Decision Making
c) Uncertainties
d) None of these
- 10) "All bird fly" which of the following is referred as predicate in given sentence?
a) bird
b) fly
c) All
d) None of these
- 11) Probability always lies between?
a) 0 and 1
b) 0 and 100
c) 0 and infinity
d) -infinity to +infinity
- 12) Decision making involves utility theory?
a) Yes
b) No
c) Not always
d) None of above
- 13) Which of these is the best learning model suitable for an observable environment?
a) Supervised
b) Unsupervised
c) Both a & b
d) None
- 14) AI is study of _____ Agents.
a) Omniscience
b) Rational
c) Autonomy
d) None of these

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of calculator is allowed
4) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four questions. 16**
- a) Explain any four applications of AI.
 - b) Explain any two types AI agents with diagram.
 - c) Explain Breadth first search algorithm with an example?
 - d) Explain what is Ontology with reference to AI.
 - e) What is constraint Satisfaction Problems? Explain with map colouring example?
- Q.3 Solve any two questions. 12**
- a) Explain the minimax algorithm with example.
 - b) Differentiate between A* and AO* Algorithm?
 - c) Write short note on knowledge representation and reasoning.

Section – II

- Q.4 Solve any Four questions. 16**
- a) Explain Bays rule in Probability?
 - b) Explain with two examples probabilistic inference.
 - c) Explain utility theory.
 - d) How decision making is done by a robot.
 - e) What are sequential decision problems.
- Q.5 Solve any two questions. 12**
- a) Explain Bayesian network with any two examples.
 - b) Differentiate between supervised and unsupervised learning.
 - c) Write a short note on Learning and knowledge acquisition.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternative from the options. 14

- 1) "All bird fly" which of the following is referred as predicate in given sentence?
 - a) bird
 - b) fly
 - c) All
 - d) None of these
- 2) Probability always lies between?
 - a) 0 and 1
 - b) 0 and 100
 - c) 0 and infinity
 - d) -infinity to +infinity
- 3) Decision making involves utility theory?
 - a) Yes
 - b) No
 - c) Not always
 - d) None of above
- 4) Which of these is the best learning model suitable for an observable environment?
 - a) Supervised
 - b) Unsupervised
 - c) Both a & b
 - d) None
- 5) AI is study of _____ Agents.
 - a) Omniscience
 - b) Rational
 - c) Autonomy
 - d) None of these
- 6) Which of following has task fully observable environment _____.
 - a) Chess Game
 - b) Taxi Driver
 - c) Medicine Diagnosis
 - d) None of these
- 7) In regards with informed search which statement is not TRUE?
 - a) It has domain knowledge
 - b) It will increase the time complexity
 - c) it uses heuristic function
 - d) Greedy Best First Search Algorithm is type of informed search
- 8) Which is an actuator in AI CAR agent application?
 - a) Object detection sensor
 - b) Temperature sensor
 - c) Wheel Drive
 - d) None of these

- 9) Which of the following best describes learning where the agent must also learn what to do
- a) Passive
 - b) Active
 - c) Unsupervised
 - d) All of these
- 10) Which of the following search technique has AND/OR graph theory?
- a) Greedy Best First Search
 - b) A*
 - c) AO*
 - d) None of these
- 11) What are the types of entities covered in Ontology
- a) Physical and abstract objects
 - b) time and locations
 - c) Actions and events
 - d) All
- 12) Propositional Logic has _____ output.
- a) Either True or False
 - b) Both True and False
 - c) Quantitative Value
 - d) None
- 13) Which of the following statement can be represented using the universal quantifier?
- a) All bird fly
 - b) Some bird fly
 - c) Rohan is intelligent
 - d) Some men drink coffee
- 14) Which of the following cannot be handled by an intelligent agent
- a) Learning
 - b) Decision Making
 - c) Uncertainties
 - d) None of these

Seat No.	
-----------------	--

Set S

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence (BTN06515)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of calculator is allowed
4) Assume suitable data wherever necessary.

Section – I

- Q.2 Attempt Any Four questions. 16**
- a) Explain any four applications of AI.
 - b) Explain any two types AI agents with diagram.
 - c) Explain Breadth first search algorithm with an example?
 - d) Explain what is Ontology with reference to AI.
 - e) What is constraint Satisfaction Problems? Explain with map colouring example?
- Q.3 Solve any two questions. 12**
- a) Explain the minimax algorithm with example.
 - b) Differentiate between A* and AO* Algorithm?
 - c) Write short note on knowledge representation and reasoning.

Section – II

- Q.4 Solve any Four questions. 16**
- a) Explain Bays rule in Probability?
 - b) Explain with two examples probabilistic inference.
 - c) Explain utility theory.
 - d) How decision making is done by a robot.
 - e) What are sequential decision problems.
- Q.5 Solve any two questions. 12**
- a) Explain Bayesian network with any two examples.
 - b) Differentiate between supervised and unsupervised learning.
 - c) Write a short note on Learning and knowledge acquisition.

Seat No.	
-------------	--

Set **P**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What are the types of feature Extraction?
 - a) PCA
 - b) LDA
 - c) A & B
 - d) None
- 2) PCA is technique for _____.
 - a) Feature Extraction
 - b) Dimension Reduction
 - c) Variance Normalization
 - d) Data Augmentation
- 3) Which of the following is an example of feature extraction?
 - a) Constructing bag of words vector from an email
 - b) Applying PCA projects to a large high-dimensional data
 - c) Removing stopwords in a sentence
 - d) All of the above
- 4) Which are the techniques are comes under attributes aggregation
 - a) Principal component analysis
 - b) Independent component analysis
 - c) Multidimensional scaling
 - d) All of the above
- 5) Attribute selection method help to find best attribute subset from given set of attributes
 - a) True
 - b) False
- 6) What are the different types of attributes?
 - a) Nominal
 - b) Ordinal
 - c) Quantitative
 - d) All of above
- 7) Median can be used a central tendency to _____ kind of features.
 - a) Categorical
 - b) Ordinal
 - c) Quantitative
 - d) All

- 8)** What are some examples of Data Quality problems
- a) Noisy and Outliers data
 - b) Missing data
 - c) Duplicates
 - d) All of these
- 9)** Why do we need feature transformation?
- a) Converting non numeric features into numeric
 - b) Resizing inputs to fix size
 - c) A and B
 - d) None
- 10)** _____ is an example of Shape statistics.
- a) Range
 - b) Quartiles
 - c) Mode
 - d) Kurtosis
- 11)** Which of the following(s) is/are features scaling techniques?
- a) Standardization
 - b) Normalization
 - c) Min max Scaling
 - d) all of above
- 12)** In following type of feature selection method we start with empty feature set
- a) Forward feature selection
 - b) Backward feature selection
 - c) Both a and b
 - d) All of above
- 13)** CNN is mostly used when there is an?
- a) Structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 14)** Which of the following is a subset of machine learning?
- a) AI
 - b) Deep Learning
 - c) SciPy
 - d) None

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three

12

- a) Fill the missing values in the below table. Use the mode for qualitative values and rounded average for quantitative values; consider the object from same class (company) for the process of identification of missing value.

Food	Age	Distance	Company
Chinese	51	Close	Good
			Good
Italian	82		Good
Burgers	23	Far	Bad
Chinese	46		Good
Chinese			Bad
Burgers		Vary close	Good
Chinese	38	Close	Bad
Italian	31	Far	Good

- b) State the reasons to apply dimensionality reduction.
c) Write a short note on principal component analysis.
d) What are the differences between irrelevant, inconsistent and redundant data. Explain with the help of suitable example.

Q.3 Attempt the following (Any Two)

16

- a) Explain the conversion of different scale types.
b) What is the feature selection and its types?
c) Explain the concept of Principal Component Analysis.

Section – II

Q.4 Attempt the following (Any Three)

12

- a) Write a python code for dealing with counts.
b) What is the Normalization explain it with diagram.
c) Explain the Pros and Cons of Machine Learning and Deep Learning
d) Write a note on Convolutional Layers with diagram.

Q.5 Attempt the following (Any Two)

- a) Define the terms Data Tasks, Models, Features, Scalars, Vectors, and Spaces.
- b) Write a python code to implement Min-Max scalers technique.
- c) Explain the term Fully Connected Layers with example.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What are some examples of Data Quality problems
 - a) Noisy and Outliers data
 - b) Missing data
 - c) Duplicates
 - d) All of these
- 2) Why do we need feature transformation?
 - a) Converting non numeric features into numeric
 - b) Resizing inputs to fix size
 - c) A and B
 - d) None
- 3) _____ is an example of Shape statistics.
 - a) Range
 - b) Quartiles
 - c) Mode
 - d) Kurtosis
- 4) Which of the following(s) is/are features scaling techniques?
 - a) Standardization
 - b) Normalization
 - c) Min max Scaling
 - d) all of above
- 5) In following type of feature selection method we start with empty feature set
 - a) Forward feature selection
 - b) Backward feature selection
 - c) Both a and b
 - d) All of above
- 6) CNN is mostly used when there is an?
 - a) Structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 7) Which of the following is a subset of machine learning?
 - a) AI
 - b) Deep Learning
 - c) SciPy
 - d) None
- 8) What are the types of feature Extraction?
 - a) PCA
 - b) LDA
 - c) A & B
 - d) None
- 9) PCA is technique for _____.
 - a) Feature Extraction
 - b) Dimension Reduction
 - c) Variance Normalization
 - d) Data Augmentation

- 10)** Which of the following is an example of feature extraction?
a) Constructing bag of words vector from an email
b) Applying PCA projects to a large high-dimensional data
c) Removing stopwords in a sentence
d) All of the above
- 11)** Which are the techniques are comes under attributes aggregation
a) Principal component analysis b) Independent component analysis
c) Multidimensional scaling d) All of the above
- 12)** Attribute selection method help to find best attribute subset from given set of attributes
a) True b) False
- 13)** What are the different types of attributes?
a) Nominal b) Ordinal
c) Quantitative d) All of above
- 14)** Median can be used a central tendency to _____ kind of features.
a) Categorical b) Ordinal
c) Quantitative d) All

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three

12

- a) Fill the missing values in the below table. Use the mode for qualitative values and rounded average for quantitative values; consider the object from same class (company) for the process of identification of missing value.

Food	Age	Distance	Company
Chinese	51	Close	Good
			Good
Italian	82		Good
Burgers	23	Far	Bad
Chinese	46		Good
Chinese			Bad
Burgers		Vary close	Good
Chinese	38	Close	Bad
Italian	31	Far	Good

- b) State the reasons to apply dimensionality reduction.
 c) Write a short note on principal component analysis.
 d) What are the differences between irrelevant, inconsistent and redundant data. Explain with the help of suitable example.

Q.3 Attempt the following (Any Two)

16

- a) Explain the conversion of different scale types.
 b) What is the feature selection and its types?
 c) Explain the concept of Principal Component Analysis.

Section – II

Q.4 Attempt the following (Any Three)

12

- a) Write a python code for dealing with counts.
 b) What is the Normalization explain it with diagram.
 c) Explain the Pros and Cons of Machine Learning and Deep Learning
 d) Write a note on Convolutional Layers with diagram.

Q.5 Attempt the following (Any Two)

- a) Define the terms Data Tasks, Models, Features, Scalars, Vectors, and Spaces.
- b) Write a python code to implement Min-Max scalers technique.
- c) Explain the term Fully Connected Layers with example.

Seat No.	
-------------	--

Set **R**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) Which of the following(s) is/are features scaling techniques?
 - a) Standardization
 - b) Normalization
 - c) Min max Scaling
 - d) all of above
- 2) In following type of feature selection method we start with empty feature set
 - a) Forward feature selection
 - b) Backward feature selection
 - c) Both a and b
 - d) All of above
- 3) CNN is mostly used when there is an?
 - a) Structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 4) Which of the following is a subset of machine learning?
 - a) AI
 - b) Deep Learning
 - c) SciPy
 - d) None
- 5) What are the types of feature Extraction?
 - a) PCA
 - b) LDA
 - c) A & B
 - d) None
- 6) PCA is technique for _____.
 - a) Feature Extraction
 - b) Dimension Reduction
 - c) Variance Normalization
 - d) Data Augmentation
- 7) Which of the following is an example of feature extraction?
 - a) Constructing bag of words vector from an email
 - b) Applying PCA projects to a large high-dimensional data
 - c) Removing stopwords in a sentence
 - d) All of the above
- 8) Which are the techniques are comes under attributes aggregation
 - a) Principal component analysis
 - b) Independent component analysis
 - c) Multidimensional scaling
 - d) All of the above

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three

12

- a) Fill the missing values in the below table. Use the mode for qualitative values and rounded average for quantitative values; consider the object from same class (company) for the process of identification of missing value.

Food	Age	Distance	Company
Chinese	51	Close	Good
			Good
Italian	82		Good
Burgers	23	Far	Bad
Chinese	46		Good
Chinese			Bad
Burgers		Vary close	Good
Chinese	38	Close	Bad
Italian	31	Far	Good

- b) State the reasons to apply dimensionality reduction.
c) Write a short note on principal component analysis.
d) What are the differences between irrelevant, inconsistent and redundant data. Explain with the help of suitable example.

Q.3 Attempt the following (Any Two)

16

- a) Explain the conversion of different scale types.
b) What is the feature selection and its types?
c) Explain the concept of Principal Component Analysis.

Section – II

Q.4 Attempt the following (Any Three)

12

- a) Write a python code for dealing with counts.
b) What is the Normalization explain it with diagram.
c) Explain the Pros and Cons of Machine Learning and Deep Learning
d) Write a note on Convolutional Layers with diagram.

Q.5 Attempt the following (Any Two)

- a) Define the terms Data Tasks, Models, Features, Scalars, Vectors, and Spaces.
- b) Write a python code to implement Min-Max scalers technique.
- c) Explain the term Fully Connected Layers with example.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What are the different types of attributes?
 - a) Nominal
 - b) Ordinal
 - c) Quantitative
 - d) All of above
- 2) Median can be used a central tendency to _____ kind of features.
 - a) Categorical
 - b) Ordinal
 - c) Quantitative
 - d) All
- 3) What are some examples of Data Quality problems
 - a) Noisy and Outliers data
 - b) Missing data
 - c) Duplicates
 - d) All of these
- 4) Why do we need feature transformation?
 - a) Converting non numeric features into numeric
 - b) Resizing inputs to fix size
 - c) A and B
 - d) None
- 5) _____ is an example of Shape statistics.
 - a) Range
 - b) Quartiles
 - c) Mode
 - d) Kurtosis
- 6) Which of the following(s) is/are features scaling techniques?
 - a) Standardization
 - b) Normalization
 - c) Min max Scaling
 - d) all of above
- 7) In following type of feature selection method we start with empty feature set
 - a) Forward feature selection
 - b) Backward feature selection
 - c) Both a and b
 - d) All of above
- 8) CNN is mostly used when there is an?
 - a) Structured data
 - b) unstructured data
 - c) Both A and B
 - d) None of the above
- 9) Which of the following is a subset of machine learning?
 - a) AI
 - b) Deep Learning
 - c) SciPy
 - d) None

- 10)** What are the types of feature Extraction?
a) PCA
b) LDA
c) A & B
d) None
- 11)** PCA is technique for _____.
a) Feature Extraction
b) Dimension Reduction
c) Variance Normalization
d) Data Augmentation
- 12)** Which of the following is an example of feature extraction?
a) Constructing bag of words vector from an email
b) Applying PCA projects to a large high-dimensional data
c) Removing stopwords in a sentence
d) All of the above
- 13)** Which are the techniques are comes under attributes aggregation
a) Principal component analysis
b) Independent component analysis
c) Multidimensional scaling
d) All of the above
- 14)** Attribute selection method help to find best attribute subset from given set of attributes
a) True
b) False

Seat No.	
----------	--

Set **S**

**T.Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Processing & Feature Engineering (BTN06516)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three

12

- a) Fill the missing values in the below table. Use the mode for qualitative values and rounded average for quantitative values; consider the object from same class (company) for the process of identification of missing value.

Food	Age	Distance	Company
Chinese	51	Close	Good
			Good
Italian	82		Good
Burgers	23	Far	Bad
Chinese	46		Good
Chinese			Bad
Burgers		Vary close	Good
Chinese	38	Close	Bad
Italian	31	Far	Good

- b) State the reasons to apply dimensionality reduction.
c) Write a short note on principal component analysis.
d) What are the differences between irrelevant, inconsistent and redundant data. Explain with the help of suitable example.

Q.3 Attempt the following (Any Two)

16

- a) Explain the conversion of different scale types.
b) What is the feature selection and its types?
c) Explain the concept of Principal Component Analysis.

Section – II

Q.4 Attempt the following (Any Three)

12

- a) Write a python code for dealing with counts.
b) What is the Normalization explain it with diagram.
c) Explain the Pros and Cons of Machine Learning and Deep Learning
d) Write a note on Convolutional Layers with diagram.

Q.5 Attempt the following (Any Two)

- a) Define the terms Data Tasks, Models, Features, Scalars, Vectors, and Spaces.
- b) Write a python code to implement Min-Max scalers technique.
- c) Explain the term Fully Connected Layers with example.

Seat No.	
-------------	--

Set

P

T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) In the context of IIoT, what role does AI play in analytics?
 - a) Analyzing Agricultural Data
 - b) Enhancing Cybersecurity
 - c) Improving Social Media Engagement
 - d) Augmenting Industrial Internet Analytics
- 2) What is a key opportunity associated with the IIoT?
 - a) Reduced Job Opportunities
 - b) Increased Environmental Impact
 - c) Enhanced Operational Efficiency
 - d) Limited Technological Advancements
- 3) What is a common application of IIoT in use-cases?

a) Online Shopping	b) Smart Office Solutions
c) Virtual Reality Gaming	d) Social Media Networking
- 4) What is the purpose of Gateways in IIoT Reference Architecture?
 - a) Enhancing Wireless Communication
 - b) Legacy Protocol Modernization
 - c) Data Encryption
 - d) Three-Tier Topology Implementation
- 5) Which category includes Modern Communication Protocols in IIoT systems?

a) Analog Communication	b) Digital Communication
c) Wireless Communication	d) Legacy Communication
- 6) Which protocol is commonly used for securing the Operational Technology (OT) in IIoT systems?

a) HTTPS	b) SNMP
c) Modbus	d) MQTT

- 7) What is a potential security concern at the system level in IIoT?
- a) Device Color
 - b) Data Sensitivity
 - c) Authentication and Authorization
 - d) Communication Speed
- 8) What is the purpose of AWS QuickSight in Cloud Industrial IoT Solutions?
- a) Real-time Data Ingestion
 - b) Data Visualization and Business Intelligence
 - c) Cloud Storage
 - d) Querying Data
- 9) Which AWS service is utilized for registering devices in AWS IoT Core?
- a) AWS S3
 - b) AWS Athena
 - c) AWS Glue
 - d) AWS IoT Core
- 10) What does AWS Glue primarily focus on in Cloud Industrial IoT Solutions?
- a) Real-time Analytics
 - b) Data Storage
 - c) Data Ingestion
 - d) ETL (Extract, Transform, Load)
- 11) Which Google Cloud service is specifically designed for managing and ingesting data from IoT devices at scale?
- a) Google Cloud Pub/Sub
 - b) Google Cloud Storage
 - c) Google Cloud Bigtable
 - d) Google Cloud Dataflow
- 12) What is the purpose of Google Cloud Bigtable in Cloud Industrial IoT Solutions?
- a) Real-time Analytics
 - b) Scalable NoSQL Storage
 - c) Device Registration
 - d) Data Querying and Analysis
- 13) What is the primary purpose of monitoring and metering in OpenStack?
- a) Managing User Identity
 - b) Real-time Data Storage
 - c) Tracking Resource Usage and Performance
 - d) Virtual Machine Creation
- 14) What is involved in the process of updating and patching in the context of OpenStack?
- a) User Authentication
 - b) Modifying User Identity
 - c) Keeping Software Components Up-to-Date
 - d) Elasticity and Scaling

Seat No.	
-----------------	--

Set P

**T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- What are the three primary types of tools needed to deliver intelligence workloads at the edge?
- Describe one use case for the smart home vertical that aligns with one or more of the key benefits of ML-powered edge solutions.
- What is the benefit of isolating your code and dependencies from other services?
- What is the benefit of using a publish/subscribe model to exchange messages?

Q.3 Attempt any Two. 16

- What is the benefit of decoupling services in your edge architecture?
- What do you think is the worst-case scenario if your home network router was compromised by an attacker but was still processing traffic as normal?
- Explain in detail with an example to describe what common components an edge solution uses.

Section – II

Q.4 Attempt any Three. 12

- Explain how you modify an artifact stored in the cloud after it has been included in a registered custom component.
- What is the benefit of performing a data modeling exercise?
- Discuss at least one benefit of using a serverless function for processing IoT data.
- What business intelligence (BI) services can you use for data exposition to end consumers?

Q.5 Attempt any Two. 16

- What are some examples that differentiate static and dynamic resources of an edge component?
- Discuss the relevance of ETL architectures for edge computing.
- Why is it necessary to have an operational data store or a data lake/data warehouse?

Seat No.	
-------------	--

Set **Q**

T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) What is the purpose of AWS QuickSight in Cloud Industrial IoT Solutions?
 - a) Real-time Data Ingestion
 - b) Data Visualization and Business Intelligence
 - c) Cloud Storage
 - d) Querying Data
- 2) Which AWS service is utilized for registering devices in AWS IoT Core?
 - a) AWS S3
 - b) AWS Athena
 - c) AWS Glue
 - d) AWS IoT Core
- 3) What does AWS Glue primarily focus on in Cloud Industrial IoT Solutions?
 - a) Real-time Analytics
 - b) Data Storage
 - c) Data Ingestion
 - d) ETL (Extract, Transform, Load)
- 4) Which Google Cloud service is specifically designed for managing and ingesting data from IoT devices at scale?
 - a) Google Cloud Pub/Sub
 - b) Google Cloud Storage
 - c) Google Cloud Bigtable
 - d) Google Cloud Dataflow
- 5) What is the purpose of Google Cloud Bigtable in Cloud Industrial IoT Solutions?
 - a) Real-time Analytics
 - b) Scalable NoSQL Storage
 - c) Device Registration
 - d) Data Querying and Analysis
- 6) What is the primary purpose of monitoring and metering in OpenStack?
 - a) Managing User Identity
 - b) Real-time Data Storage
 - c) Tracking Resource Usage and Performance
 - d) Virtual Machine Creation

- 7) What is involved in the process of updating and patching in the context of OpenStack?
- a) User Authentication
 - b) Modifying User Identity
 - c) Keeping Software Components Up-to-Date
 - d) Elasticity and Scaling
- 8) In the context of IIoT, what role does AI play in analytics?
- a) Analyzing Agricultural Data
 - b) Enhancing Cybersecurity
 - c) Improving Social Media Engagement
 - d) Augmenting Industrial Internet Analytics
- 9) What is a key opportunity associated with the IIoT?
- a) Reduced Job Opportunities
 - b) Increased Environmental Impact
 - c) Enhanced Operational Efficiency
 - d) Limited Technological Advancements
- 10) What is a common application of IIoT in use-cases?
- a) Online Shopping
 - b) Smart Office Solutions
 - c) Virtual Reality Gaming
 - d) Social Media Networking
- 11) What is the purpose of Gateways in IIoT Reference Architecture?
- a) Enhancing Wireless Communication
 - b) Legacy Protocol Modernization
 - c) Data Encryption
 - d) Three-Tier Topology Implementation
- 12) Which category includes Modern Communication Protocols in IIoT systems?
- a) Analog Communication
 - b) Digital Communication
 - c) Wireless Communication
 - d) Legacy Communication
- 13) Which protocol is commonly used for securing the Operational Technology (OT) in IIoT systems?
- a) HTTPS
 - b) SNMP
 - c) Modbus
 - d) MQTT
- 14) What is a potential security concern at the system level in IIoT?
- a) Device Color
 - b) Data Sensitivity
 - c) Authentication and Authorization
 - d) Communication Speed

Seat No.	
-----------------	--

Set Q

**T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- What are the three primary types of tools needed to deliver intelligence workloads at the edge?
- Describe one use case for the smart home vertical that aligns with one or more of the key benefits of ML-powered edge solutions.
- What is the benefit of isolating your code and dependencies from other services?
- What is the benefit of using a publish/subscribe model to exchange messages?

Q.3 Attempt any Two. 16

- What is the benefit of decoupling services in your edge architecture?
- What do you think is the worst-case scenario if your home network router was compromised by an attacker but was still processing traffic as normal?
- Explain in detail with an example to describe what common components an edge solution uses.

Section – II

Q.4 Attempt any Three. 12

- Explain how you modify an artifact stored in the cloud after it has been included in a registered custom component.
- What is the benefit of performing a data modeling exercise?
- Discuss at least one benefit of using a serverless function for processing IoT data.
- What business intelligence (BI) services can you use for data exposition to end consumers?

Q.5 Attempt any Two. 16

- What are some examples that differentiate static and dynamic resources of an edge component?
- Discuss the relevance of ETL architectures for edge computing.
- Why is it necessary to have an operational data store or a data lake/data warehouse?

Seat No.	
-----------------	--

Set R

**T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)**

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) Which Google Cloud service is specifically designed for managing and ingesting data from IoT devices at scale?
 - a) Google Cloud Pub/Sub
 - b) Google Cloud Storage
 - c) Google Cloud Bigtable
 - d) Google Cloud Dataflow
- 2) What is the purpose of Google Cloud Bigtable in Cloud Industrial IoT Solutions?
 - a) Real-time Analytics
 - b) Scalable NoSQL Storage
 - c) Device Registration
 - d) Data Querying and Analysis
- 3) What is the primary purpose of monitoring and metering in OpenStack?
 - a) Managing User Identity
 - b) Real-time Data Storage
 - c) Tracking Resource Usage and Performance
 - d) Virtual Machine Creation
- 4) What is involved in the process of updating and patching in the context of OpenStack?
 - a) User Authentication
 - b) Modifying User Identity
 - c) Keeping Software Components Up-to-Date
 - d) Elasticity and Scaling
- 5) In the context of IIoT, what role does AI play in analytics?
 - a) Analyzing Agricultural Data
 - b) Enhancing Cybersecurity
 - c) Improving Social Media Engagement
 - d) Augmenting Industrial Internet Analytics
- 6) What is a key opportunity associated with the IIoT?
 - a) Reduced Job Opportunities
 - b) Increased Environmental Impact
 - c) Enhanced Operational Efficiency
 - d) Limited Technological Advancements

Seat No.	
-------------	--

Set **R**

T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any Three. **12**

- a) What are the three primary types of tools needed to deliver intelligence workloads at the edge?
- b) Describe one use case for the smart home vertical that aligns with one or more of the key benefits of ML-powered edge solutions.
- c) What is the benefit of isolating your code and dependencies from other services?
- d) What is the benefit of using a publish/subscribe model to exchange messages?

Q.3 Attempt any Two. **16**

- a) What is the benefit of decoupling services in your edge architecture?
- b) What do you think is the worst-case scenario if your home network router was compromised by an attacker but was still processing traffic as normal?
- c) Explain in detail with an example to describe what common components an edge solution uses.

Section – II

Q.4 Attempt any Three. **12**

- a) Explain how you modify an artifact stored in the cloud after it has been included in a registered custom component.
- b) What is the benefit of performing a data modeling exercise?
- c) Discuss at least one benefit of using a serverless function for processing IoT data.
- d) What business intelligence (BI) services can you use for data exposition to end consumers?

Q.5 Attempt any Two. **16**

- a) What are some examples that differentiate static and dynamic resources of an edge component?
- b) Discuss the relevance of ETL architectures for edge computing.
- c) Why is it necessary to have an operational data store or a data lake/data warehouse?

Seat No.	
-------------	--

Set **S**

T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) Which protocol is commonly used for securing the Operational Technology (OT) in IIoT systems?
 - a) HTTPS
 - b) SNMP
 - c) Modbus
 - d) MQTT
- 2) What is a potential security concern at the system level in IIoT?
 - a) Device Color
 - b) Data Sensitivity
 - c) Authentication and Authorization
 - d) Communication Speed
- 3) What is the purpose of AWS QuickSight in Cloud Industrial IoT Solutions?
 - a) Real-time Data Ingestion
 - b) Data Visualization and Business Intelligence
 - c) Cloud Storage
 - d) Querying Data
- 4) Which AWS service is utilized for registering devices in AWS IoT Core?
 - a) AWS S3
 - b) AWS Athena
 - c) AWS Glue
 - d) AWS IoT Core
- 5) What does AWS Glue primarily focus on in Cloud Industrial IoT Solutions?
 - a) Real-time Analytics
 - b) Data Storage
 - c) Data Ingestion
 - d) ETL (Extract, Transform, Load)
- 6) Which Google Cloud service is specifically designed for managing and ingesting data from IoT devices at scale?
 - a) Google Cloud Pub/Sub
 - b) Google Cloud Storage
 - c) Google Cloud Bigtable
 - d) Google Cloud Dataflow
- 7) What is the purpose of Google Cloud Bigtable in Cloud Industrial IoT Solutions?
 - a) Real-time Analytics
 - b) Scalable NoSQL Storage
 - c) Device Registration
 - d) Data Querying and Analysis

- 8) What is the primary purpose of monitoring and metering in OpenStack?
- a) Managing User Identity
 - b) Real-time Data Storage
 - c) Tracking Resource Usage and Performance
 - d) Virtual Machine Creation
- 9) What is involved in the process of updating and patching in the context of OpenStack?
- a) User Authentication
 - b) Modifying User Identity
 - c) Keeping Software Components Up-to-Date
 - d) Elasticity and Scaling
- 10) In the context of IIoT, what role does AI play in analytics?
- a) Analyzing Agricultural Data
 - b) Enhancing Cybersecurity
 - c) Improving Social Media Engagement
 - d) Augmenting Industrial Internet Analytics
- 11) What is a key opportunity associated with the IIoT?
- a) Reduced Job Opportunities
 - b) Increased Environmental Impact
 - c) Enhanced Operational Efficiency
 - d) Limited Technological Advancements
- 12) What is a common application of IIoT in use-cases?
- a) Online Shopping
 - b) Smart Office Solutions
 - c) Virtual Reality Gaming
 - d) Social Media Networking
- 13) What is the purpose of Gateways in IIoT Reference Architecture?
- a) Enhancing Wireless Communication
 - b) Legacy Protocol Modernization
 - c) Data Encryption
 - d) Three-Tier Topology Implementation
- 14) Which category includes Modern Communication Protocols in IIoT systems?
- a) Analog Communication
 - b) Digital Communication
 - c) Wireless Communication
 - d) Legacy Communication

Seat No.	
---------------------	--

Set **S**

T. Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IoT (BTN06517)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any Three. **12**

- a) What are the three primary types of tools needed to deliver intelligence workloads at the edge?
- b) Describe one use case for the smart home vertical that aligns with one or more of the key benefits of ML-powered edge solutions.
- c) What is the benefit of isolating your code and dependencies from other services?
- d) What is the benefit of using a publish/subscribe model to exchange messages?

Q.3 Attempt any Two. **16**

- a) What is the benefit of decoupling services in your edge architecture?
- b) What do you think is the worst-case scenario if your home network router was compromised by an attacker but was still processing traffic as normal?
- c) Explain in detail with an example to describe what common components an edge solution uses.

Section – II

Q.4 Attempt any Three. **12**

- a) Explain how you modify an artifact stored in the cloud after it has been included in a registered custom component.
- b) What is the benefit of performing a data modeling exercise?
- c) Discuss at least one benefit of using a serverless function for processing IoT data.
- d) What business intelligence (BI) services can you use for data exposition to end consumers?

Q.5 Attempt any Two. **16**

- a) What are some examples that differentiate static and dynamic resources of an edge component?
- b) Discuss the relevance of ETL architectures for edge computing.
- c) Why is it necessary to have an operational data store or a data lake/data warehouse?

Seat No.	
-------------	--

Set **P**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) All questions are compulsory
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) When semaphore and Warner signals are installed on the same post, then the stop indication is given when
 - a) Semaphore arm is lowered but Warner arm is horizontal
 - b) Both semaphore and Warner arms are lowered
 - c) Both the arms are horizontal
 - d) None of the above
- 2) The reception signal is

a) Outer signal only	b) Starter Only
c) Neither (outer signal) nor	d) Both (outer signal) and (starter)
- 3) A treadle bar is used for

a) Interlocking point and signal	b) Setting points and crossings
c) setting marshalling yard	d) Track maintenance
- 4) The stations which do not have any signal are known as

a) A-class stations	b) B-class stations
c) Crossing stations	d) Terminal stations
- 5) What is the URL of a website?
 - a) It is the location of website on internet
 - b) It is used to create internet
 - c) It is location of peripheral on internet
 - d) None of these
- 6) "@" in an email address is used to _____.

a) Separate username from ISP	b) Create password for email
c) Add strength to email	d) None of these
- 7) FTP uses _____ parallel TCP connections to transfer a file.

a) 1	b) 2
c) 3	d) 4

- 8) Fiber optics possess following properties _____.
- a) Immune electromagnetic interference
 - b) Very less signal attenuation
 - c) Very hard to tap
 - d) All of the mentioned
- 9) What is the max data transfer rate for optical fiber cable?
- a) 10 Mbps
 - b) 100 Mbps
 - c) 1000 Mbps
 - d) 10000 Mbps
- 10) The secondary winding of which of the given transformer is always kept closed?
- a) Voltage transformer
 - b) Current transformer
 - c) Step-up transformer
 - d) Power transformer
- 11) Which of the following does not change in an ordinary transformer?
- a) Current
 - b) Frequency
 - c) Voltage
 - d) All of the above
- 12) If the strands of the fusing wire are twisted, what happens to the fusing current?
- a) Increases
 - b) Reduces
 - c) No change/ remains same
 - d) Depends on the value of current, increases or decreases.
- 13) On what factor does the operating speed of the relay depend upon?
- a) Rate of flux built up
 - b) Armature core air gap
 - c) Spring tension
 - d) All of these
- 14) The capacity of a lead-acid cell depends on
- a) Rate of discharge
 - b) Temperature
 - c) Density of electrolyte
 - d) All above

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four. 16**
- a) Give the advantages & disadvantages of Optical Fiber Cables.
 - b) Explain Co-axial cable construction & types.
 - c) Give uses & advantages of email.
 - d) What do you mean by Rectifiers? Give classification.
 - e) Write a note on IC Regulators.
- Q.3 Attempt Any Two. 12**
- a) Write a note on different batteries.
 - b) Write a note on Real-Time Communication.
 - c) Explain & compare Internet & Intranet.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Explain the Client-Server communication model.
 - b) What are the objects of signals in the Railway?
 - c) Explain Network security in Computer Network
 - d) Explain Semaphore signal in Railway.
 - e) Explain the concept of point, &, the location of a point in the Railway.
- Q.5 Attempt Any Two. 12**
- a) Give & explain the classification of Railway signals according to functions.
 - b) Write a note on Railnet.
 - c) Write a note on FTP (File Transfer Protocol).

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) All questions are compulsory
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Fiber optics possess following properties _____.
 - a) Immune electromagnetic interference
 - b) Very less signal attenuation
 - c) Very hard to tap
 - d) All of the mentioned
- 2) What is the max data transfer rate for optical fiber cable?
 - a) 10 Mbps
 - b) 100 Mbps
 - c) 1000 Mbps
 - d) 10000 Mbps
- 3) The secondary winding of which of the given transformer is always kept closed?
 - a) Voltage transformer
 - b) Current transformer
 - c) Step-up transformer
 - d) Power transformer
- 4) Which of the following does not change in an ordinary transformer?
 - a) Current
 - b) Frequency
 - c) Voltage
 - d) All of the above
- 5) If the strands of the fusing wire are twisted, what happens to the fusing current?
 - a) Increases
 - b) Reduces
 - c) No change/ remains same
 - d) Depends on the value of current, increases or decreases.
- 6) On what factor does the operating speed of the relay depend upon?
 - a) Rate of flux built up
 - b) Armature core air gap
 - c) Spring tension
 - d) All of these
- 7) The capacity of a lead-acid cell depends on
 - a) Rate of discharge
 - b) Temperature
 - c) Density of electrolyte
 - d) All above

- 8) When semaphore and Warner signals are installed on the same post, then the stop indication is given when
- a) Semaphore arm is lowered but Warner arm is horizontal
 - b) Both semaphore and Warner arms are lowered
 - c) Both the arms are horizontal
 - d) None of the above
- 9) The reception signal is
- a) Outer signal only
 - b) Starter Only
 - c) Neither (outer signal) nor
 - d) Both (outer signal) and (starter)
- 10) A treadle bar is used for
- a) Interlocking point and signal
 - b) Setting points and crossings
 - c) setting marshalling yard
 - d) Track maintenance
- 11) The stations which do not have any signal are known as
- a) A-class stations
 - b) B-class stations
 - c) Crossing stations
 - d) Terminal stations
- 12) What is the URL of a website?
- a) It is the location of website on internet
 - b) It is used to create internet
 - c) It is location of peripheral on internet
 - d) None of these
- 13) "@" in an email address is used to _____.
- a) Separate username from ISP
 - b) Create password for email
 - c) Add strength to email
 - d) None of these
- 14) FTP uses _____ parallel TCP connections to transfer a file.
- a) 1
 - b) 2
 - c) 3
 - d) 4

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four. 16

- Give the advantages & disadvantages of Optical Fiber Cables.
- Explain Co-axial cable construction & types.
- Give uses & advantages of email.
- What do you mean by Rectifiers? Give classification.
- Write a note on IC Regulators.

Q.3 Attempt Any Two. 12

- Write a note on different batteries.
- Write a note on Real-Time Communication.
- Explain & compare Internet & Intranet.

Section – II

Q.4 Attempt Any Four. 16

- Explain the Client-Server communication model.
- What are the objects of signals in the Railway?
- Explain Network security in Computer Network
- Explain Semaphore signal in Railway.
- Explain the concept of point, &, the location of a point in the Railway.

Q.5 Attempt Any Two. 12

- Give & explain the classification of Railway signals according to functions.
- Write a note on Railnet.
- Write a note on FTP (File Transfer Protocol).

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) All questions are compulsory
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which of the following does not change in an ordinary transformer?
 - a) Current
 - b) Frequency
 - c) Voltage
 - d) All of the above
- 2) If the strands of the fusing wire are twisted, what happens to the fusing current?
 - a) Increases
 - b) Reduces
 - c) No change/ remains same
 - d) Depends on the value of current, increases or decreases.
- 3) On what factor does the operating speed of the relay depend upon?
 - a) Rate of flux built up
 - b) Armature core air gap
 - c) Spring tension
 - d) All of these
- 4) The capacity of a lead-acid cell depends on
 - a) Rate of discharge
 - b) Temperature
 - c) Density of electrolyte
 - d) All above
- 5) When semaphore and Warner signals are installed on the same post, then the stop indication is given when
 - a) Semaphore arm is lowered but Warner arm is horizontal
 - b) Both semaphore and Warner arms are lowered
 - c) Both the arms are horizontal
 - d) None of the above
- 6) The reception signal is
 - a) Outer signal only
 - b) Starter Only
 - c) Neither (outer signal) nor
 - d) Both (outer signal) and (starter)
- 7) A treadle bar is used for
 - a) Interlocking point and signal
 - b) Setting points and crossings
 - c) setting marshalling yard
 - d) Track maintenance
- 8) The stations which do not have any signal are known as
 - a) A-class stations
 - b) B-class stations
 - c) Crossing stations
 - d) Terminal stations

- 9) What is the URL of a website?
a) It is the location of website on internet
b) It is used to create internet
c) It is location of peripheral on internet
d) None of these
- 10) "@" in an email address is used to _____.
a) Separate username from ISP b) Create password for email
c) Add strength to email d) None of these
- 11) FTP uses _____ parallel TCP connections to transfer a file.
a) 1 b) 2
c) 3 d) 4
- 12) Fiber optics possess following properties _____.
a) Immune electromagnetic interference
b) Very less signal attenuation
c) Very hard to tap
d) All of the mentioned
- 13) What is the max data transfer rate for optical fiber cable?
a) 10 Mbps b) 100 Mbps
c) 1000 Mbps d) 10000 Mbps
- 14) The secondary winding of which of the given transformer is always kept closed?
a) Voltage transformer b) Current transformer
c) Step-up transformer d) Power transformer

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four. 16**
- a) Give the advantages & disadvantages of Optical Fiber Cables.
 - b) Explain Co-axial cable construction & types.
 - c) Give uses & advantages of email.
 - d) What do you mean by Rectifiers? Give classification.
 - e) Write a note on IC Regulators.
- Q.3 Attempt Any Two. 12**
- a) Write a note on different batteries.
 - b) Write a note on Real-Time Communication.
 - c) Explain & compare Internet & Intranet.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Explain the Client-Server communication model.
 - b) What are the objects of signals in the Railway?
 - c) Explain Network security in Computer Network
 - d) Explain Semaphore signal in Railway.
 - e) Explain the concept of point, &, the location of a point in the Railway.
- Q.5 Attempt Any Two. 12**
- a) Give & explain the classification of Railway signals according to functions.
 - b) Write a note on Railnet.
 - c) Write a note on FTP (File Transfer Protocol).

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) All questions are compulsory
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) “@” in an email address is used to _____.
 a) Separate username from ISP b) Create password for email
 c) Add strength to email d) None of these
- 2) FTP uses _____ parallel TCP connections to transfer a file.
 a) 1 b) 2
 c) 3 d) 4
- 3) Fiber optics possess following properties _____.
 a) Immune electromagnetic interference
 b) Very less signal attenuation
 c) Very hard to tap
 d) All of the mentioned
- 4) What is the max data transfer rate for optical fiber cable?
 a) 10 Mbps b) 100 Mbps
 c) 1000 Mbps d) 10000 Mbps
- 5) The secondary winding of which of the given transformer is always kept closed?
 a) Voltage transformer b) Current transformer
 c) Step-up transformer d) Power transformer
- 6) Which of the following does not change in an ordinary transformer?
 a) Current b) Frequency
 c) Voltage d) All of the above
- 7) If the strands of the fusing wire are twisted, what happens to the fusing current?
 a) Increases
 b) Reduces
 c) No change/ remains same
 d) Depends on the value of current, increases or decreases.
- 8) On what factor does the operating speed of the relay depend upon?
 a) Rate of flux built up b) Armature core air gap
 c) Spring tension d) All of these

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Communication and Signaling in Railway (BTN06518)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four. 16**
- a) Give the advantages & disadvantages of Optical Fiber Cables.
 - b) Explain Co-axial cable construction & types.
 - c) Give uses & advantages of email.
 - d) What do you mean by Rectifiers? Give classification.
 - e) Write a note on IC Regulators.
- Q.3 Attempt Any Two. 12**
- a) Write a note on different batteries.
 - b) Write a note on Real-Time Communication.
 - c) Explain & compare Internet & Intranet.

Section – II

- Q.4 Attempt Any Four. 16**
- a) Explain the Client-Server communication model.
 - b) What are the objects of signals in the Railway?
 - c) Explain Network security in Computer Network
 - d) Explain Semaphore signal in Railway.
 - e) Explain the concept of point, &, the location of a point in the Railway.
- Q.5 Attempt Any Two. 12**
- a) Give & explain the classification of Railway signals according to functions.
 - b) Write a note on Railnet.
 - c) Write a note on FTP (File Transfer Protocol).

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 3) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.

a) The behavior of firms	b) The activities of individual units
c) Economic aggregates	d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?

a) owning the only licensed taxicab in town	b) the United States Postal Service
c) ownership of the only ferry across Puget Sound for twenty miles	d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA

- 8) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9) Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10) _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.

a) Increase	b) Decrease
c) No change	d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 6) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency

- 8)** Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9)** Macroeconomic theory deals with _____.
- | | |
|--------------------------|---------------------------------------------|
| a) The behavior of firms | b) The activities of individual units |
| c) Economic aggregates | d) The behavior of the electronics industry |
- 10)** Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 3) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 5) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly

- 8)** Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9)** Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10)** Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Economics (BTN06505)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **P**

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?

a) 35 years	b) 25 years
c) 20 years	d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.

a) Ethical value	b) Moral value
c) Social value	d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 4) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 5) Trade mark _____.

a) is represented graphically
b) is capable of distinguishing the goods or services of one person from those of others
c) may include shapes of goods or combination of colors
d) All of the above
- 6) In India, the literary work is protected until _____.

a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 7) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights

- 8) In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9) The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10) All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

- 8)** In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9)** Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10)** In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

Set R

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?
 - a) Inventor
 - b) Patent Attorney
 - c) Assignee
 - d) Patent Searcher
- 2) The following can be patented _____.
 - a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?
 - a) Trade secrets
 - b) Trademarks
 - c) Home loans
 - d) Copyrights
- 6) In which article is intellectual property rights outlined?
 - a) Article 15
 - b) Article 27
 - c) Article 13
 - d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.
 - a) 1856
 - b) 1880
 - c) 1905
 - d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN06506)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 2) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 3) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 4) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 5) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 6) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 7) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 8) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 9) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 2) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 3) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 4) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 5) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 6) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 7) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 8) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 9) What is the base of social structure?

a) polity	b) government
c) economy	d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 2) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 3) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 4) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 5) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 6) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 7) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 8) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 9) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Introduction to Sociology (BTN06507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.**10**

- 1) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 3) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 6) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 7) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above

- 8) Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
-----------------	--

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 2) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 3) Which of the following is true about 'deep breathing relaxation technique'?

a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true
- 4) Which of the following are stress busters?

a) Trying to find something funny in a difficult situation
b) Developing a support network
c) Taking a mindful walk
d) All of the above
- 5) Which one is not considered as Environmental stressors?

a) Weather	b) Traffic
c) Financial problems	d) Substandard housing
- 6) When a task appears overwhelming, it is best to _____.

a) Put it aside till later
b) Drink alcohol to relax
c) Break it down into smaller task
d) Avoid the task
- 7) The word Stress is derived from Latin word 'Stringere' which means _____.

a) Draw tight	b) Stimulus
c) Force	d) Attitude

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.**10**

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 7) Aches, shallow breathing and sweating, frequent colds are _____.
a) Physical symptoms of stress
b) Behavioral symptoms of stress
c) Emotional symptoms of stress
d) Cognitive symptoms of stress
- 8) Anxiety can cause the following moods _____.
a) Irritable
b) Nervous
c) Anxious
d) All of the above
- 9) Which of the following are the physical symptoms of anxiety?
a) Racing heart
b) Sweaty palms
c) Flushed cheeks
d) All of the above
- 10) Which of the following is true about 'deep breathing relaxation technique'?
a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

Set

S

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Stress and Coping (BTN06508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **P**

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Professional Ethics & Human Value (BTN06509)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 2) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 3) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 4) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 5) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 6) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 7) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 8) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Professional Ethics & Human Value (BTN06509)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **Q**

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Professional Ethics & Human Value (BTN06509)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Professional Ethics & Human Value (BTN06509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

- 9) Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10) Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Professional Ethics & Human Value (BTN06509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

- 8) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9) Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10) One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

Set S

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Professional Ethics & Human Value (BTN06509)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

- 9) For a dipole Log Periodic Antenna all the dimensions change by the _____.
a) Same scaling factor b) Log of scaling factor
c) Tangent of scaling factor d) None
- 10) Horn antennas are derivatives of _____.
a) Coaxial lines b) Slots
c) Microstrips d) Waveguides
- 11) A microstrip antenna usually classified as _____.
a) Narrow band b) Medium band
c) Broadband d) Base band
- 12) Smart antenna is combining _____ technology.
a) Digital signal processing b) Smart technology
c) Android d) All of above
- 13) Space wave propagation is the type of _____.
a) Surface wave propagation b) Ground wave propagation
c) Sky wave propagation d) Radio wave propagation
- 14) Product of frequency and wavelength is called as _____.
a) Speed of light b) Constant
c) Variable d) Does not having meaning

Seat No.	
-------------	--

Set **P**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Antenna & Wave Propagation (BTN06601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) Explain in brief principle of radiation mechanism of an antenna.
 - b) Define the current distribution for the following short dipole, half wave dipole and monopole.
 - c) Explain the slot antenna and its applications.
 - d) Explain the following modes of helical antenna.
 - i) Normal Mode
 - ii) Axial Mode
- Q.3 Attempt any Two. 16**
- a) Define antenna beam width, antenna bandwidth, antenna beam efficiency, antenna beam area, antenna temperature with one example.
 - b) What is pattern multiplication? State its importance. Explain with an example.
 - c) Explain the radiation resistance and radiation power for half wave dipole antenna and monopole.

Section – II

- Q.4 Attempt any Three 12**
- a) Explain advantages and applications of microstrip antenna.
 - b) Explain the concept of smart antenna with analogy.
 - c) State and explain various modes of propagation.
 - d) Write short note on duct propagation and troposcattering.
- Q.5 Attempt any Two. 16**
- a) Explain the working of Horn antenna. Explain different types of horn antenna.
 - b) Explain the concept of reconfigurable antennas in detail.
 - c) What is the structure of atmosphere? Explain each layer, significance of all.

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Antenna & Wave Propagation (BTN06601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) As the number of turns in helical antenna approaches to infinity then the axial ration become _____.

a) Unity	b) Infinity
c) Two	d) Four
- 2) For a dipole Log Periodic Antenna all the dimensions change by the _____.

a) Same scaling factor	b) Log of scaling factor
c) Tangent of scaling factor	d) None
- 3) Horn antennas are derivatives of _____.

a) Coaxial lines	b) Slots
c) Microstrips	d) Waveguides
- 4) A microstrip antenna usually classified as _____.

a) Narrow band	b) Medium band
c) Broadband	d) Base band
- 5) Smart antenna is combining _____ technology.

a) Digital signal processing	b) Smart technology
c) Android	d) All of above
- 6) Space wave propagation is the type of _____.

a) Surface wave propagation	b) Ground wave propagation
c) Sky wave propagation	d) Radio wave propagation
- 7) Product of frequency and wavelength is called as _____.

a) Speed of light	b) Constant
c) Variable	d) Does not having meaning
- 8) To create radiation there must be a _____.

a) Direct current	b) Time Varying current
c) Induced current	d) All of above
- 9) A radiator having equal radiation in all direction is referred to as _____ radiator.

a) Directional	b) Isotropic
c) Guided	d) Non-directional

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Antenna & Wave Propagation (BTN06601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) Explain in brief principle of radiation mechanism of an antenna.
 - b) Define the current distribution for the following short dipole, half wave dipole and monopole.
 - c) Explain the slot antenna and its applications.
 - d) Explain the following modes of helical antenna.
 - i) Normal Mode
 - ii) Axial Mode
- Q.3 Attempt any Two. 16**
- a) Define antenna beam width, antenna bandwidth, antenna beam efficiency, antenna beam area, antenna temperature with one example.
 - b) What is pattern multiplication? State its importance. Explain with an example.
 - c) Explain the radiation resistance and radiation power for half wave dipole antenna and monopole.

Section – II

- Q.4 Attempt any Three 12**
- a) Explain advantages and applications of microstrip antenna.
 - b) Explain the concept of smart antenna with analogy.
 - c) State and explain various modes of propagation.
 - d) Write short note on duct propagation and troposcattering.
- Q.5 Attempt any Two. 16**
- a) Explain the working of Horn antenna. Explain different types of horn antenna.
 - b) Explain the concept of reconfigurable antennas in detail.
 - c) What is the structure of atmosphere? Explain each layer, significance of all.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Antenna & Wave Propagation (BTN06601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A microstrip antenna usually classified as _____.
 - a) Narrow band
 - b) Medium band
 - c) Broadband
 - d) Base band
- 2) Smart antenna is combining _____ technology.
 - a) Digital signal processing
 - b) Smart technology
 - c) Android
 - d) All of above
- 3) Space wave propagation is the type of _____.
 - a) Surface wave propagation
 - b) Ground wave propagation
 - c) Sky wave propagation
 - d) Radio wave propagation
- 4) Product of frequency and wavelength is called as _____.
 - a) Speed of light
 - b) Constant
 - c) Variable
 - d) Does not having meaning
- 5) To create radiation there must be a _____.
 - a) Direct current
 - b) Time Varying current
 - c) Induced current
 - d) All of above
- 6) A radiator having equal radiation in all direction is referred to as _____ radiator.
 - a) Directional
 - b) Isotropic
 - c) Guided
 - d) Non-directional
- 7) The ratio of 4π over the beam solid angle is defined the _____.
 - a) Gain
 - b) Directivity
 - c) Efficiency
 - d) Aperture
- 8) The input impedance of $\lambda/2$ dipole, with an idealized sinusoidal current distribution _____.
 - a) $73+j42.5$
 - b) $50+j100$
 - c) $25+j50$
 - d) $36+j42.5$
- 9) To achieve Broadside radiation from a uniform linear array, the phasing between elements must be _____.
 - a) 90
 - b) 45
 - c) 0
 - d) 120

- 10)** A monopole antenna is considered as _____.
a) Traveling wave b) Surface wave
c) Sky wave d) Resonant
- 11)** Primary modes of radiation of helical antenna are _____.
a) Normal mode only b) Axial mode only
c) Both normal and axial mode d) None
- 12)** As the number of turns in helical antenna approaches to infinity then the axial ration become _____.
a) Unity b) Infinity
c) Two d) Four
- 13)** For a dipole Log Periodic Antenna all the dimensions change by the _____.
a) Same scaling factor b) Log of scaling factor
c) Tangent of scaling factor d) None
- 14)** Horn antennas are derivatives of _____.
a) Coaxial lines b) Slots
c) Microstrips d) Waveguides

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Antenna & Wave Propagation (BTN06601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) Explain in brief principle of radiation mechanism of an antenna.
 - b) Define the current distribution for the following short dipole, half wave dipole and monopole.
 - c) Explain the slot antenna and its applications.
 - d) Explain the following modes of helical antenna.
 - i) Normal Mode
 - ii) Axial Mode
- Q.3 Attempt any Two. 16**
- a) Define antenna beam width, antenna bandwidth, antenna beam efficiency, antenna beam area, antenna temperature with one example.
 - b) What is pattern multiplication? State its importance. Explain with an example.
 - c) Explain the radiation resistance and radiation power for half wave dipole antenna and monopole.

Section – II

- Q.4 Attempt any Three 12**
- a) Explain advantages and applications of microstrip antenna.
 - b) Explain the concept of smart antenna with analogy.
 - c) State and explain various modes of propagation.
 - d) Write short note on duct propagation and troposcattering.
- Q.5 Attempt any Two. 16**
- a) Explain the working of Horn antenna. Explain different types of horn antenna.
 - b) Explain the concept of reconfigurable antennas in detail.
 - c) What is the structure of atmosphere? Explain each layer, significance of all.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Antenna & Wave Propagation (BTN06601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Three. 12**
- a) Explain in brief principle of radiation mechanism of an antenna.
 - b) Define the current distribution for the following short dipole, half wave dipole and monopole.
 - c) Explain the slot antenna and its applications.
 - d) Explain the following modes of helical antenna.
 - i) Normal Mode
 - ii) Axial Mode
- Q.3 Attempt any Two. 16**
- a) Define antenna beam width, antenna bandwidth, antenna beam efficiency, antenna beam area, antenna temperature with one example.
 - b) What is pattern multiplication? State its importance. Explain with an example.
 - c) Explain the radiation resistance and radiation power for half wave dipole antenna and monopole.

Section – II

- Q.4 Attempt any Three 12**
- a) Explain advantages and applications of microstrip antenna.
 - b) Explain the concept of smart antenna with analogy.
 - c) State and explain various modes of propagation.
 - d) Write short note on duct propagation and troposcattering.
- Q.5 Attempt any Two. 16**
- a) Explain the working of Horn antenna. Explain different types of horn antenna.
 - b) Explain the concept of reconfigurable antennas in detail.
 - c) What is the structure of atmosphere? Explain each layer, significance of all.

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following **14**

- 1) What does T, D, M, I stands for in ARM7TDMI?
 - a) Timer, Debug, Multiplex, ICE
 - b) Thumb, Debug, Multiplier, ICE
 - c) Timer, Debug, Modulation, IS
 - d) More
- 2) In LPC2148 board _____ bit ARM7TDMI controller is present?
 - a) 128 bit
 - b) 8 bit
 - c) 64 bit
 - d) 32 bit
- 3) When there is a failed attempt to memory access then processor enters _____ mode.
 - a) Abort
 - b) Supervisor
 - c) User
 - d) Fast Interrupt Request
- 4) Exception priorities are in the following descending order
 - a) Reset, Data, Abort, FIQ, IRQ, Pre Fetch Abort, SWI or Undef
 - b) SWI or Undef, Pre Fetch Abort, IRQ, FIQ, Abort, Data, Reset
 - c) FIQ, IRQ, Data, Abort, Pre Fetch Abort, SWI or Undef, Reset
 - d) None of the above
- 5) Who is the founder of LPC2148 board?
 - a) Intel
 - b) Atmel
 - c) Motorola
 - d) Philips
- 6) In LPC 2148 _____ pin select register is used to configure port pins P0.0 to P0.15.
 - a) PINSEL0
 - b) PINSEL1
 - c) PINSEL2
 - d) IOODIR
- 7) _____ instruction transfer the content of CPSR into a register file.
 - a) MRS
 - b) CPSR
 - c) MSR
 - d) None
- 8) What is the standard form of LSL?
 - a) Logical Shift Left
 - b) Left Shift Logical
 - c) Logical Shift Logic
 - d) None of these

- 9) _____ is a kernel object that one or more threads of execution can release for the purposes of synchronization.
- a) Interrupt
 - b) Acquire
 - c) Semaphore
 - d) Mutual exclusion
- 10) Concurrent and independent threads of execution that can compete for CPU execution time is called _____.
- a) Semaphore
 - b) Task
 - c) Threading
 - d) None of the above
- 11) A semaphore is a protocol mechanism used to _____.
- a) control access to a shared resource
 - b) signal the occurrence of an event
 - c) allow two task to synchronize their activities
 - d) all of the above
- 12) Which is the core of OS?
- a) Kernel
 - b) Semaphore
 - c) Shell
 - d) Scheduler
- 13) When the processor is executing in thumb state, then all instructions are _____ wide
- a) 8 bits
 - b) 16 bits
 - c) 32 bits
 - d) 64 bits
- 14) In real time operating system _____.
- a) All processes have the same priority
 - b) A task must be serviced by its deadline period
 - c) Process scheduling can be done only once
 - d) Kernel is not required

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Attempt any four of the following questions. 16

- a) Define embedded system. Explain the components of embedded system Hardware.
- b) Explain the features of LPC 2148 in detail.
- c) Draw and explain CPSR format.
- d) Explain general purpose registers related to LPC2148.
- e) Describe the operation with example of following ARM instructions.
 1) MVN 2) ADD 3) LDR 4) MSR

Q.3 Attempt any Two of the following questions. 12

- a) With the suitable diagram explain ARM 7TDMI core architecture in detail.
- b) What are the recent trends in embedded system? Explain each in detail.
- c) Explain the following on chip peripherals of LPC 2148 in detail. PLL WDT

Section – II

Q.4 Attempt any Four of the following questions. 16

- a) Write different features μcos of II RTOS.
- b) Explain concept of semaphore with example.
- c) What are the RTOS services in contrast with traditional OS.
- d) Define interrupt latency, interrupt response time and interrupt recovery time.
- e) Draw and explain the block diagram of Smart Card System based ATM.

Q.5 Attempt any Two of the following questions. 12

- a) Explain the following kernel objects in RTOS.
 1) Message Queue
 2) Event Register
- b) What are the types of scheduling algorithm. Explain any two types of scheduling algorithm in RTOS.
- c) Draw interfacing diagram of 16x2 LCD with LPC2148. Write an embedded c program to display "Embedded Systems" message on 16x2 LCD.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following

14

- 1) What is the standard form of LSL?
 - a) Logical Shift Left
 - b) Left Shift Logical
 - c) Logical Shift Logic
 - d) None of these

- 2) _____ is a kernel object that one or more threads of execution can release for the purposes of synchronization.
 - a) Interrupt
 - b) Acquire
 - c) Semaphore
 - d) Mutual exclusion

- 3) Concurrent and independent threads of execution that can compete for CPU execution time is called _____.
 - a) Semaphore
 - b) Task
 - c) Threading
 - d) None of the above

- 4) A semaphore is a protocol mechanism used to _____.
 - a) control access to a shared resource
 - b) signal the occurrence of an event
 - c) allow two task to synchronize their activities
 - d) all of the above

- 5) Which is the core of OS?
 - a) Kernel
 - b) Semaphore
 - c) Shell
 - d) Scheduler

- 6) When the processor is executing in thumb state, then all instructions are _____ wide
 - a) 8 bits
 - b) 16 bits
 - c) 32 bits
 - d) 64 bits

- 7) In real time operating system _____.
 - a) All processes have the same priority
 - b) A task must be serviced by its deadline period
 - c) Process scheduling can be done only once
 - d) Kernel is not required

- 8) What does T, D, M, I stands for in ARM7TDMI?
a) Timer, Debug, Multiplex, ICE b) Thumb, Debug, Multiplier, ICE
c) Timer, Debug, Modulation, IS d) More
- 9) In LPC2148 board _____ bit ARM7TDMI controller is present?
a) 128 bit b) 8 bit
c) 64 bit d) 32 bit
- 10) When there is a failed attempt to memory access then processor enters _____ mode.
a) Abort b) Supervisor
c) User d) Fast Interrupt Request
- 11) Exception priorities are in the following descending order
a) Reset, Data, Abort, FIQ, IRQ, Pre Fetch Abort, SWI or Undef
b) SWI or Undef, Pre Fetch Abort, IRQ, FIQ, Abort, Data, Reset
c) FIQ, IRQ, Data, Abort, Pre Fetch Abort, SWI or Undef, Reset
d) None of the above
- 12) Who is the founder of LPC2148 board?
a) Intel b) Atmel
c) Motorola d) Philips
- 13) In LPC 2148 _____ pin select register is used to configure port pins P0.0 to P0.15.
a) PINSEL0 b) PINSEL1
c) PINSEL2 d) IO0DIR
- 14) _____ instruction transfer the content of CPSR into a register file.
a) MRS b) CPSR
c) MSR d) None

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Attempt any four of the following questions. 16

- a) Define embedded system. Explain the components of embedded system Hardware.
- b) Explain the features of LPC 2148 in detail.
- c) Draw and explain CPSR format.
- d) Explain general purpose registers related to LPC2148.
- e) Describe the operation with example of following ARM instructions.
 1) MVN 2) ADD 3) LDR 4) MSR

Q.3 Attempt any Two of the following questions. 12

- a) With the suitable diagram explain ARM 7TDMI core architecture in detail.
- b) What are the recent trends in embedded system? Explain each in detail.
- c) Explain the following on chip peripherals of LPC 2148 in detail. PLL WDT

Section – II

Q.4 Attempt any Four of the following questions. 16

- a) Write different features μ cos of II RTOS.
- b) Explain concept of semaphore with example.
- c) What are the RTOS services in contrast with traditional OS.
- d) Define interrupt latency, interrupt response time and interrupt recovery time.
- e) Draw and explain the block diagram of Smart Card System based ATM.

Q.5 Attempt any Two of the following questions. 12

- a) Explain the following kernel objects in RTOS.
 1) Message Queue
 2) Event Register
- b) What are the types of scheduling algorithm. Explain any two types of scheduling algorithm in RTOS.
- c) Draw interfacing diagram of 16x2 LCD with LPC2148. Write an embedded c program to display "Embedded Systems" message on 16x2 LCD.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following

14

- 1) A semaphore is a protocol mechanism used to _____.
 - a) control access to a shared resource
 - b) signal the occurrence of an event
 - c) allow two task to synchronize their activities
 - d) all of the above
- 2) Which is the core of OS?
 - a) Kernel
 - b) Semaphore
 - c) Shell
 - d) Scheduler
- 3) When the processor is executing in thumb state, then all instructions are _____ wide
 - a) 8 bits
 - b) 16 bits
 - c) 32 bits
 - d) 64 bits
- 4) In real time operating system _____.
 - a) All processes have the same priority
 - b) A task must be serviced by its deadline period
 - c) Process scheduling can be done only once
 - d) Kernel is not required
- 5) What does T, D, M, I stands for in ARM7TDMI?
 - a) Timer, Debug, Multiplex, ICE
 - b) Thumb, Debug, Multiplier, ICE
 - c) Timer, Debug, Modulation, IS
 - d) More
- 6) In LPC2148 board _____ bit ARM7TDMI controller is present?
 - a) 128 bit
 - b) 8 bit
 - c) 64 bit
 - d) 32 bit
- 7) When there is a failed attempt to memory access then processor enters _____ mode.
 - a) Abort
 - b) Supervisor
 - c) User
 - d) Fast Interrupt Request

- 8) Exception priorities are in the following descending order
- a) Reset, Data, Abort, FIQ, IRQ, Pre Fetch Abort, SWI or Undef
 - b) SWI or Undef, Pre Fetch Abort, IRQ, FIQ, Abort, Data, Reset
 - c) FIQ, IRQ, Data, Abort, Pre Fetch Abort, SWI or Undef, Reset
 - d) None of the above
- 9) Who is the founder of LPC2148 board?
- a) Intel
 - b) Atmel
 - c) Motorola
 - d) Philips
- 10) In LPC 2148 _____ pin select register is used to configure port pins P0.0 to P0.15.
- a) PINSEL0
 - b) PINSEL1
 - c) PINSEL2
 - d) IO0DIR
- 11) _____ instruction transfer the content of CPSR into a register file.
- a) MRS
 - b) CPSR
 - c) MSR
 - d) None
- 12) What is the standard form of LSL?
- a) Logical Shift Left
 - b) Left Shift Logical
 - c) Logical Shift Logic
 - d) None of these
- 13) _____ is a kernel object that one or more threads of execution can release for the purposes of synchronization.
- a) Interrupt
 - b) Acquire
 - c) Semaphore
 - d) Mutual exclusion
- 14) Concurrent and independent threads of execution that can compete for CPU execution time is called _____.
- a) Semaphore
 - b) Task
 - c) Threading
 - d) None of the above

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Define embedded system. Explain the components of embedded system Hardware.
 - b) Explain the features of LPC 2148 in detail.
 - c) Draw and explain CPSR format.
 - d) Explain general purpose registers related to LPC2148.
 - e) Describe the operation with example of following ARM instructions.
 1) MVN 2) ADD 3) LDR 4) MSR
- Q.3 Attempt any Two of the following questions. 12**
- a) With the suitable diagram explain ARM 7TDMI core architecture in detail.
 - b) What are the recent trends in embedded system? Explain each in detail.
 - c) Explain the following on chip peripherals of LPC 2148 in detail. PLL WDT

Section – II

- Q.4 Attempt any Four of the following questions. 16**
- a) Write different features μ cos of II RTOS.
 - b) Explain concept of semaphore with example.
 - c) What are the RTOS services in contrast with traditional OS.
 - d) Define interrupt latency, interrupt response time and interrupt recovery time.
 - e) Draw and explain the block diagram of Smart Card System based ATM.
- Q.5 Attempt any Two of the following questions. 12**
- a) Explain the following kernel objects in RTOS.
 1) Message Queue
 2) Event Register
 - b) What are the types of scheduling algorithm. Explain any two types of scheduling algorithm in RTOS.
 - c) Draw interfacing diagram of 16x2 LCD with LPC2148. Write an embedded c program to display "Embedded Systems" message on 16x2 LCD.

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following **14**

- 1) In LPC 2148 _____ pin select register is used to configure port pins P0.0 to P0.15.
 - a) PINSEL0
 - b) PINSEL1
 - c) PINSEL2
 - d) IOODIR
- 2) _____ instruction transfer the content of CPSR into a register file.
 - a) MRS
 - b) CPSR
 - c) MSR
 - d) None
- 3) What is the standard form of LSL?
 - a) Logical Shift Left
 - b) Left Shift Logical
 - c) Logical Shift Logic
 - d) None of these
- 4) _____ is a kernel object that one or more threads of execution can release for the purposes of synchronization.
 - a) Interrupt
 - b) Acquire
 - c) Semaphore
 - d) Mutual exclusion
- 5) Concurrent and independent threads of execution that can compete for CPU execution time is called _____.
 - a) Semaphore
 - b) Task
 - c) Threading
 - d) None of the above
- 6) A semaphore is a protocol mechanism used to _____.
 - a) control access to a shared resource
 - b) signal the occurrence of an event
 - c) allow two task to synchronize their activities
 - d) all of the above
- 7) Which is the core of OS?
 - a) Kernel
 - b) Semaphore
 - c) Shell
 - d) Scheduler
- 8) When the processor is executing in thumb state, then all instructions are _____ wide
 - a) 8 bits
 - b) 16 bits
 - c) 32 bits
 - d) 64 bits

- 9) In real time operating system _____.
- a) All processes have the same priority
 - b) A task must be serviced by its deadline period
 - c) Process scheduling can be done only once
 - d) Kernel is not required
- 10) What does T, D, M, I stands for in ARM7TDMI?
- a) Timer, Debug, Multiplex, ICE
 - b) Thumb, Debug, Multiplier, ICE
 - c) Timer, Debug, Modulation, IS
 - d) More
- 11) In LPC2148 board _____ bit ARM7TDMI controller is present?
- a) 128 bit
 - b) 8 bit
 - c) 64 bit
 - d) 32 bit
- 12) When there is a failed attempt to memory access then processor enters _____ mode.
- a) Abort
 - b) Supervisor
 - c) User
 - d) Fast Interrupt Request
- 13) Exception priorities are in the following descending order
- a) Reset, Data, Abort, FIQ, IRQ, Pre Fetch Abort, SWI or Undef
 - b) SWI or Undef, Pre Fetch Abort, IRQ, FIQ, Abort, Data, Reset
 - c) FIQ, IRQ, Data, Abort, Pre Fetch Abort, SWI or Undef, Reset
 - d) None of the above
- 14) Who is the founder of LPC2148 board?
- a) Intel
 - b) Atmel
 - c) Motorola
 - d) Philips

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Embedded System (BTN06602)

Day & Date: Friday 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

Q.2 Attempt any four of the following questions. 16

- a) Define embedded system. Explain the components of embedded system Hardware.
- b) Explain the features of LPC 2148 in detail.
- c) Draw and explain CPSR format.
- d) Explain general purpose registers related to LPC2148.
- e) Describe the operation with example of following ARM instructions.
 1) MVN 2) ADD 3) LDR 4) MSR

Q.3 Attempt any Two of the following questions. 12

- a) With the suitable diagram explain ARM 7TDMI core architecture in detail.
- b) What are the recent trends in embedded system? Explain each in detail.
- c) Explain the following on chip peripherals of LPC 2148 in detail. PLL WDT

Section – II

Q.4 Attempt any Four of the following questions. 16

- a) Write different features μ cos of II RTOS.
- b) Explain concept of semaphore with example.
- c) What are the RTOS services in contrast with traditional OS.
- d) Define interrupt latency, interrupt response time and interrupt recovery time.
- e) Draw and explain the block diagram of Smart Card System based ATM.

Q.5 Attempt any Two of the following questions. 12

- a) Explain the following kernel objects in RTOS.
 1) Message Queue
 2) Event Register
- b) What are the types of scheduling algorithm. Explain any two types of scheduling algorithm in RTOS.
- c) Draw interfacing diagram of 16x2 LCD with LPC2148. Write an embedded c program to display "Embedded Systems" message on 16x2 LCD.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) With gate open, the maximum anode current at which SCR is turned OFF from ON condition is called _____.
 - a) breakdown voltage
 - b) peak reverse voltage
 - c) holding current
 - d) latching current
- 2) IC1596 consists of _____ along with differential amplifier pairs.
 - a) Current sources
 - b) voltage sources
 - c) none of these
- 3) For a single phase halfwave converter with R load, maximum DC voltage obtained is _____.
 - a) $V_m/2\pi$
 - b) V_m/π
 - c) $V_m/3\pi$
 - d) V_m
- 4) A fully controlled bridge converter is more beneficial over M-2 converter because _____.
 - a) SCR PIV rating requirement is less
 - b) Transformer rating requirement is less
 - c) Both a and b
 - d) None of these
- 5) _____ is used to trigger TRIAC.
 - a) DIAC
 - b) SCR
 - c) BJT
 - d) None of these
- 6) In a PLL frequency synthesizer, a value of divide-by-N network varies from 9 to 999 in a single steps increment with $f_{in} = 1$ KHz. What is the value of synthesizer output?
 - a) 0.1 KHz to 999 KHz
 - b) 1 KHz to 999 KHz
 - c) 10 KHz to 999 KHz
 - d) 9 KHz to 999 KHz
- 7) What is the VCO center frequency of LM565 with $R_1 = 10K$ and $C_1 = 0.01\mu f$ is _____.
 - a) 3KHz
 - b) 300Hz
 - c) 1000Hz
 - d) None of these

- 8) To obtain delay of 350 RC, number of XR 2240 required are _____.
a) 1
b) 2
c) 4
d) All of above
- 9) IC 74C926 displays output of latch, if its display select pin is connected to _____.
a) Logic 0
b) Logic 1
c) Either a or b
d) None
- 10) RTD is a temperature sensor with _____ temperature coefficient.
a) Positive
b) Negative
c) Linear
d) Non - Linear
- 11) Resistance of PT 100 at 0 deg C is _____.
a) 100 Ω
b) 200 Ω
c) 138.5 Ω
d) 50 Ω
- 12) Which of the following is self powered temperature sensor?
a) Thermocouple
b) RTD
c) Thermistor
d) None of these
- 13) Proportional band of the controller is expressed as: _____.
a) Gain
b) Ratio
c) Percentage
d) Range of control variables
- 14) What type of power supply is typically used for a PLC?
a) AC
b) DC
c) Both AC and DC
d) Solar

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt Any Four of the following. 16**
- a) Explain VI characteristics of DIAC with the help of plot, schematic construction and symbol.
 - b) For a free running frequency of 1KHz from PLL565, determine value of lock range, capture range and frequency of VCO.
 - c) Define latching current and holding current, forward breakover voltage and Peak reverse voltage.
 - d) What is commutation? Explain CLASS B commutation method of SCR.
 - e) Explain AC power control using DIAC and TRIAC.
- Q.3 Attempt Any Two of the following: 12**
- a) Explain with the help of circuit diagram and waveforms single phase full wave-controlled rectifier bridge rectifier with resistive load. Derive the expression for Average DC output voltage, Average DC load current, RMS load voltage.
 - b) Design frequency synthesizer to generate signal of 1KHz to 999KHz using PLL565.
 - c) Explain construction and working of SCR. Compare TRIAC and SCR.

Section – II

- Q.4 Attempt Any Four of the following. 16**
- a) What is instrumentation amplifier and derive an output voltage equation for same?
 - b) Explain cold junction compensation in thermocouple.
 - c) Explain the concept of frequency ratio measurement.
 - d) Design offset voltage to current convertor input voltage is -5 to 10 V, required output current 4 mA to 20 mA.
 - e) Draw and explain PLC architecture.
- Q.5 Attempt Any Two of the following: 12**
- a) Design timer using XR2240 to generate a delay of 1 hr in section.
 - b) What is ladder diagram? Design ladder diagram for elevator controlling.
 - c) Design ON-OFF controller to control temperature in the range of 0°C to 100°C. Set point is 40°C.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt Any Four of the following. 16**
- a) Explain VI characteristics of DIAC with the help of plot, schematic construction and symbol.
 - b) For a free running frequency of 1KHz from PLL565, determine value of lock range, capture range and frequency of VCO.
 - c) Define latching current and holding current, forward breakover voltage and Peak reverse voltage.
 - d) What is commutation? Explain CLASS B commutation method of SCR.
 - e) Explain AC power control using DIAC and TRIAC.
- Q.3 Attempt Any Two of the following: 12**
- a) Explain with the help of circuit diagram and waveforms single phase full wave-controlled rectifier bridge rectifier with resistive load. Derive the expression for Average DC output voltage, Average DC load current, RMS load voltage.
 - b) Design frequency synthesizer to generate signal of 1KHz to 999KHz using PLL565.
 - c) Explain construction and working of SCR. Compare TRIAC and SCR.

Section – II

- Q.4 Attempt Any Four of the following. 16**
- a) What is instrumentation amplifier and derive an output voltage equation for same?
 - b) Explain cold junction compensation in thermocouple.
 - c) Explain the concept of frequency ratio measurement.
 - d) Design offset voltage to current convertor input voltage is -5 to 10 V, required output current 4 mA to 20 mA.
 - e) Draw and explain PLC architecture.
- Q.5 Attempt Any Two of the following: 12**
- a) Design timer using XR2240 to generate a delay of 1 hr in section.
 - b) What is ladder diagram? Design ladder diagram for elevator controlling.
 - c) Design ON-OFF controller to control temperature in the range of 0°C to 100°C. Set point is 40°C.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Resistance of PT 100 at 0 deg C is _____.
 - a) 100 Ω
 - b) 200 Ω
 - c) 138.5 Ω
 - d) 50 Ω
- 2) Which of the following is self powered temperature sensor?
 - a) Thermocouple
 - b) RTD
 - c) Thermistor
 - d) None of these
- 3) Proportional band of the controller is expressed as: _____.
 - a) Gain
 - b) Ratio
 - c) Percentage
 - d) Range of control variables
- 4) What type of power supply is typically used for a PLC?
 - a) AC
 - b) DC
 - c) Both AC and DC
 - d) Solar
- 5) With gate open, the maximum anode current at which SCR is turned OFF from ON condition is called _____.
 - a) breakdown voltage
 - b) peak reverse voltage
 - c) holding current
 - d) latching current
- 6) IC1596 consists of _____ along with differential amplifier pairs.
 - a) Current sources
 - b) voltage sources
 - c) none of these
- 7) For a single phase halfwave converter with R load, maximum DC voltage obtained is _____.
 - a) $V_m/2\pi$
 - b) V_m/π
 - c) $V_m/3\pi$
 - d) V_m
- 8) A fully controlled bridge converter is more beneficial over M-2 converter because _____.
 - a) SCR PIV rating requirement is less
 - b) Transformer rating requirement is less
 - c) Both a and b
 - d) None of these

- 9) _____ is used to trigger TRIAC.
- | | |
|---------|------------------|
| a) DIAC | b) SCR |
| c) BJT | d) None of these |
- 10) In a PLL frequency synthesizer, a value of divide-by-N network varies from 9 to 999 in a single steps increment with $f_{in} = 1$ KHz. What is the value of synthesizer output?
- | | |
|-----------------------|---------------------|
| a) 0.1 KHz to 999 KHz | b) 1 KHz to 999 KHz |
| c) 10 KHz to 999 KHz | d) 9 KHz to 999 KHz |
- 11) What is the VCO center frequency of LM565 with $R_1 = 10K$ and $C_1 = 0.01\mu f$ is _____.
- | | |
|-----------|------------------|
| a) 3KHz | b) 300Hz |
| c) 1000Hz | d) None of these |
- 12) To obtain delay of $350 RC$, number of XR 2240 required are _____.
- | | |
|------|-----------------|
| a) 1 | b) 2 |
| c) 4 | d) All of above |
- 13) IC 74C926 displays output of latch, if its display select pin is connected to _____.
- | | |
|------------------|------------|
| a) Logic 0 | b) Logic 1 |
| c) Either a or b | d) None |
- 14) RTD is a temperature sensor with _____ temperature coefficient.
- | | |
|-------------|-----------------|
| a) Positive | b) Negative |
| c) Linear | d) Non - Linear |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt Any Four of the following. 16**
- Explain VI characteristics of DIAC with the help of plot, schematic construction and symbol.
 - For a free running frequency of 1KHz from PLL565, determine value of lock range, capture range and frequency of VCO.
 - Define latching current and holding current, forward breakover voltage and Peak reverse voltage.
 - What is commutation? Explain CLASS B commutation method of SCR.
 - Explain AC power control using DIAC and TRIAC.
- Q.3 Attempt Any Two of the following: 12**
- Explain with the help of circuit diagram and waveforms single phase full wave-controlled rectifier bridge rectifier with resistive load. Derive the expression for Average DC output voltage, Average DC load current, RMS load voltage.
 - Design frequency synthesizer to generate signal of 1KHz to 999KHz using PLL565.
 - Explain construction and working of SCR. Compare TRIAC and SCR.

Section – II

- Q.4 Attempt Any Four of the following. 16**
- What is instrumentation amplifier and derive an output voltage equation for same?
 - Explain cold junction compensation in thermocouple.
 - Explain the concept of frequency ratio measurement.
 - Design offset voltage to current convertor input voltage is -5 to 10 V, required output current 4 mA to 20 mA.
 - Draw and explain PLC architecture.
- Q.5 Attempt Any Two of the following: 12**
- Design timer using XR2240 to generate a delay of 1 hr in section.
 - What is ladder diagram? Design ladder diagram for elevator controlling.
 - Design ON-OFF controller to control temperature in the range of 0°C to 100°C. Set point is 40°C.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) In a PLL frequency synthesizer, a value of divide-by-N network varies from 9 to 999 in a single steps increment with $f_{in} = 1 \text{ KHz}$. What is the value of synthesizer output?

a) 0.1 KHz to 999 KHz	b) 1 KHz to 999 KHz
c) 10 KHz to 999 KHz	d) 9 KHz to 999 KHz
- 2) What is the VCO center frequency of LM565 with $R1 = 10K$ and $C1 = 0.01\mu f$ is _____.

a) 3KHz	b) 300Hz
c) 1000Hz	d) None of these
- 3) To obtain delay of 350 RC, number of XR 2240 required are _____.

a) 1	b) 2
c) 4	d) All of above
- 4) IC 74C926 displays output of latch, if its display select pin is connected to _____.

a) Logic 0	b) Logic 1
c) Either a or b	d) None
- 5) RTD is a temperature sensor with _____ temperature coefficient.

a) Positive	b) Negative
c) Linear	d) Non - Linear
- 6) Resistance of PT 100 at 0 deg C is _____.

a) 100 Ω	b) 200 Ω
c) 138.5 Ω	d) 50 Ω
- 7) Which of the following is self powered temperature sensor?

a) Thermocouple	b) RTD
c) Thermistor	d) None of these
- 8) Proportional band of the controller is expressed as: _____.

a) Gain	b) Ratio
c) Percentage	d) Range of control variables

- 9) What type of power supply is typically used for a PLC?
- a) AC
 - b) DC
 - c) Both AC and DC
 - d) Solar
- 10) With gate open, the maximum anode current at which SCR is turned OFF from ON condition is called _____.
- a) breakdown voltage
 - b) peak reverse voltage
 - c) holding current
 - d) latching current
- 11) IC1596 consists of _____ along with differential amplifier pairs.
- a) Current sources
 - b) voltage sources
 - c) none of these
- 12) For a single phase halfwave converter with R load, maximum DC voltage obtained is _____.
- a) $V_m/2\pi$
 - b) V_m/π
 - c) $V_m/3\pi$
 - d) V_m
- 13) A fully controlled bridge converter is more beneficial over M-2 converter because _____.
- a) SCR PIV rating requirement is less
 - b) Transformer rating requirement is less
 - c) Both a and b
 - d) None of these
- 14) _____ is used to trigger TRIAC.
- a) DIAC
 - b) SCR
 - c) BJT
 - d) None of these

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electronic System Design (BTN06603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Attempt Any Four of the following. 16**
- a) Explain VI characteristics of DIAC with the help of plot, schematic construction and symbol.
 - b) For a free running frequency of 1KHz from PLL565, determine value of lock range, capture range and frequency of VCO.
 - c) Define latching current and holding current, forward breakover voltage and Peak reverse voltage.
 - d) What is commutation? Explain CLASS B commutation method of SCR.
 - e) Explain AC power control using DIAC and TRIAC.
- Q.3 Attempt Any Two of the following: 12**
- a) Explain with the help of circuit diagram and waveforms single phase full wave-controlled rectifier bridge rectifier with resistive load. Derive the expression for Average DC output voltage, Average DC load current, RMS load voltage.
 - b) Design frequency synthesizer to generate signal of 1KHz to 999KHz using PLL565.
 - c) Explain construction and working of SCR. Compare TRIAC and SCR.

Section – II

- Q.4 Attempt Any Four of the following. 16**
- a) What is instrumentation amplifier and derive an output voltage equation for same?
 - b) Explain cold junction compensation in thermocouple.
 - c) Explain the concept of frequency ratio measurement.
 - d) Design offset voltage to current convertor input voltage is -5 to 10 V, required output current 4 mA to 20 mA.
 - e) Draw and explain PLC architecture.
- Q.5 Attempt Any Two of the following: 12**
- a) Design timer using XR2240 to generate a delay of 1 hr in section.
 - b) What is ladder diagram? Design ladder diagram for elevator controlling.
 - c) Design ON-OFF controller to control temperature in the range of 0°C to 100°C. Set point is 40°C.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) N. A. is useful measure of _____.
 a) light scattering ability b) Attenuation
 c) Dispersion d) light gathering capability
- 2) The Numerical Aperture (NA) is defined for a step index fiber in air by NA is equal to _____.
 a) $\sin \theta a$ b) $\cos \theta a$
 c) $\tan \theta a$ d) None of these
- 3) The ray tracing helical path through fiber gives change in direction of 2γ at each reflection called _____.
 a) meridional ray b) skew ray
 c) axial ray d) none of these
- 4) Multimode graded index fibers tend to have _____ core diameters than multimode step index fibers.
 a) smaller b) Greater
 c) varying d) Constant
- 5) Meridional ray is the ray which passes through _____ of the fiber core.
 a) All angles b) The axis
 c) N. A. d) Structure
- 6) An optical fiber _____ is a device that distributes light from a main fiber into one or more branch fibers.
 a) Splitter b) Coupler
 c) Splices d) Connector
- 7) SBS (Stimulated Brillouin Scattering) is mainly a _____.
 a) Backward process
 b) Forward process
 c) Both backward and forward process
 d) None of these

- 8) A permanent joint formed between two individual optical fibers in the field is known as _____.
- a) Fiber joint
 - b) Fiber splice
 - c) Fiber coupler
 - d) Fiber connector
- 9) Ray scattering and Mie scattering are the types of _____.
- a) Linear scattering
 - b) Non Linear
 - c) Exponential Scattering
 - d) None of these
- 10) The internal quantum efficiency of LEDs decreases _____ with increasing temperature.
- a) Linearly
 - b) Inversely
 - c) Exponentially
 - d) Randomly
- 11) The internal quantum efficiency of LED decreases with _____.
- a) Increase in temp
 - b) Decrease in temp
 - c) Increase in pressure
 - d) Decrease in pressure
- 12) The requirement of detector is _____.
- a) High fidelity
 - b) Larger size
 - c) More numerical aperture
 - d) All the above
- 13) The receiver sensitivity is _____.
- a) Minimum mean power
 - b) Maximum mean power
 - c) Average mean power
 - d) None of above
- 14) OTDM stands for _____.
- a) Orthogonal time duplex multiplexing
 - b) Orthogonal Time Division Multiplexing
 - c) Both a) & b)
 - d) Optical Time Division Multiplexing

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any Four. 16

- With B.D., Explain optical fiber communication system briefly.
- Explain intrinsic absorption mechanism in fiber optics.
- Explain scattering losses observed in fiber optics.
- What is dispersion? Compare dispersions in different types of fiber optics.
- Briefly write about connectors of fiber optics.

Q.3 Solve any Two. 12

- Explain structure of surface emitting LED.
- An optical fiber has a numerical aperture of 0.20 and a cladding refractive index of 1.59. Determine.
 - The acceptance angle for the fiber in water which has a refractive index of 1.33
 - The critical angle at the core-cladding interface
- What are splices? Explain techniques for splicing.

Section – II

Q.4 Solve any Four. 16

- Explain the optical detection principle in brief.
- Explain the optical network modes in short.
- Write a short note on WDM.
- Explain OTDM.
- Explain the Transmitter design of optical communication System.

Q.5 Solve any Two. 12

- Explain the operation of Optical TDM. What are its advantages over Electrical TDM?
- Explain in detail the receiver design for optical communication System.
- Explain in detail structure and working of phototransistor.

Seat No.	
-----------------	--

Set Q

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)**

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) A permanent joint formed between two individual optical fibers in the field is known as _____.
 - a) Fiber joint
 - b) Fiber splice
 - c) Fiber coupler
 - d) Fiber connector
- 2) Ray scattering and Mie scattering are the types of _____.
 - a) Linear scattering
 - b) Non Linear
 - c) Exponential Scattering
 - d) None of these
- 3) The internal quantum efficiency of LEDs decreases _____ with increasing temperature.
 - a) Linearly
 - b) Inversely
 - c) Exponentially
 - d) Randomly
- 4) The internal quantum efficiency of LED decreases with _____.
 - a) Increase in temp
 - b) Decrease in temp
 - c) Increase in pressure
 - d) Decrease in pressure
- 5) The requirement of detector is _____.
 - a) High fidelity
 - b) Larger size
 - c) More numerical aperture
 - d) All the above
- 6) The receiver sensitivity is _____.
 - a) Minimum mean power
 - b) Maximum mean power
 - c) Average mean power
 - d) None of above
- 7) OTDM stands for _____.
 - a) Orthogonal time duplex multiplexing
 - b) Orthogonal Time Division Multiplexing
 - c) Both a) & b)
 - d) Optical Time Division Multiplexing
- 8) N. A. is useful measure of _____.
 - a) light scattering ability
 - b) Attenuation
 - c) Dispersion
 - d) light gathering capability

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any Four. 16

- With B.D., Explain optical fiber communication system briefly.
- Explain intrinsic absorption mechanism in fiber optics.
- Explain scattering losses observed in fiber optics.
- What is dispersion? Compare dispersions in different types of fiber optics.
- Briefly write about connectors of fiber optics.

Q.3 Solve any Two. 12

- Explain structure of surface emitting LED.
- An optical fiber has a numerical aperture of 0.20 and a cladding refractive index of 1.59. Determine.
 - The acceptance angle for the fiber in water which has a refractive index of 1.33
 - The critical angle at the core-cladding interface
- What are splices? Explain techniques for splicing.

Section – II

Q.4 Solve any Four. 16

- Explain the optical detection principle in brief.
- Explain the optical network modes in short.
- Write a short note on WDM.
- Explain OTDM.
- Explain the Transmitter design of optical communication System.

Q.5 Solve any Two. 12

- Explain the operation of Optical TDM. What are its advantages over Electrical TDM?
- Explain in detail the receiver design for optical communication System.
- Explain in detail structure and working of phototransistor.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) The internal quantum efficiency of LED decreases with _____.
a) Increase in temp b) Decrease in temp
c) Increase in pressure d) Decrease in pressure
- 2) The requirement of detector is _____.
a) High fidelity b) Larger size
c) More numerical aperture d) All the above
- 3) The receiver sensitivity is _____.
a) Minimum mean power b) Maximum mean power
c) Average mean power d) None of above
- 4) OTDM stands for _____.
a) Orthogonal time duplex multiplexing
b) Orthogonal Time Division Multiplexing
c) Both a) & b)
d) Optical Time Division Multiplexing
- 5) N. A. is useful measure of _____.
a) light scattering ability b) Attenuation
c) Dispersion d) light gathering capability
- 6) The Numerical Aperture (NA) is defined for a step index fiber in air by NA is equal to _____.
a) $\sin \theta a$ b) $\cos \theta a$
c) $\tan \theta a$ d) None of these
- 7) The ray tracing helical path through fiber gives change in direction of 2γ at each reflection called _____.
a) meridional ray b) skew ray
c) axial ray d) none of these
- 8) Multimode graded index fibers tend to have _____ core diameters than multimode step index fibers.
a) smaller b) Greater
c) varying d) Constant

- 9) Meridional ray is the ray which passes through _____ of the fiber core.
a) All angles
b) The axis
c) N. A.
d) Structure
- 10) An optical fiber _____ is a device that distributes light from a main fiber into one or more branch fibers.
a) Splitter
b) Coupler
c) Splices
d) Connector
- 11) SBS (Stimulated Brillouin Scattering) is mainly a _____.
a) Backward process
b) Forward process
c) Both backward and forward process
d) None of these
- 12) A permanent joint formed between two individual optical fibers in the field is known as _____.
a) Fiber joint
b) Fiber splice
c) Fiber coupler
d) Fiber connector
- 13) Ray scattering and Mie scattering are the types of _____.
a) Linear scattering
b) Non Linear
c) Exponential Scattering
d) None of these
- 14) The internal quantum efficiency of LEDs decreases _____ with increasing temperature.
a) Linearly
b) Inversely
c) Exponentially
d) Randomly

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any Four. 16

- With B.D., Explain optical fiber communication system briefly.
- Explain intrinsic absorption mechanism in fiber optics.
- Explain scattering losses observed in fiber optics.
- What is dispersion? Compare dispersions in different types of fiber optics.
- Briefly write about connectors of fiber optics.

Q.3 Solve any Two. 12

- Explain structure of surface emitting LED.
- An optical fiber has a numerical aperture of 0.20 and a cladding refractive index of 1.59. Determine.
 - The acceptance angle for the fiber in water which has a refractive index of 1.33
 - The critical angle at the core-cladding interface
- What are splices? Explain techniques for splicing.

Section – II

Q.4 Solve any Four. 16

- Explain the optical detection principle in brief.
- Explain the optical network modes in short.
- Write a short note on WDM.
- Explain OTDM.
- Explain the Transmitter design of optical communication System.

Q.5 Solve any Two. 12

- Explain the operation of Optical TDM. What are its advantages over Electrical TDM?
- Explain in detail the receiver design for optical communication System.
- Explain in detail structure and working of phototransistor.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) An optical fiber _____ is a device that distributes light from a main fiber into one or more branch fibers.

a) Splitter	b) Coupler
c) Splices	d) Connector
- 2) SBS (Stimulated Brillouin Scattering) is mainly a _____.

a) Backward process	b) Forward process
c) Both backward and forward process	d) None of these
- 3) A permanent joint formed between two individual optical fibers in the field is known as _____.

a) Fiber joint	b) Fiber splice
c) Fiber coupler	d) Fiber connector
- 4) Ray scattering and Mie scattering are the types of _____.

a) Linear scattering	b) Non Linear
c) Exponential Scattering	d) None of these
- 5) The internal quantum efficiency of LEDs decreases _____ with increasing temperature.

a) Linearly	b) Inversely
c) Exponentially	d) Randomly
- 6) The internal quantum efficiency of LED decreases with _____.

a) Increase in temp	b) Decrease in temp
c) Increase in pressure	d) Decrease in pressure
- 7) The requirement of detector is _____.

a) High fidelity	b) Larger size
c) More numerical aperture	d) All the above
- 8) The receiver sensitivity is _____.

a) Minimum mean power	b) Maximum mean power
c) Average mean power	d) None of above

- 9) OTDM stands for _____.
- a) Orthogonal time duplex multiplexing
 - b) Orthogonal Time Division Multiplexing
 - c) Both a) & b)
 - d) Optical Time Division Multiplexing
- 10) N. A. is useful measure of _____.
- a) light scattering ability
 - b) Attenuation
 - c) Dispersion
 - d) light gathering capability
- 11) The Numerical Aperture (NA) is defined for a step index fiber in air by NA is equal to _____.
- a) $\sin \theta_a$
 - b) $\cos \theta_a$
 - c) $\tan \theta_a$
 - d) None of these
- 12) The ray tracing helical path through fiber gives change in direction of 2γ at each reflection called _____.
- a) meridional ray
 - b) skew ray
 - c) axial ray
 - d) none of these
- 13) Multimode graded index fibers tend to have _____ core diameters than multimode step index fibers.
- a) smaller
 - b) Greater
 - c) varying
 - d) Constant
- 14) Meridional ray is the ray which passes through _____ of the fiber core.
- a) All angles
 - b) The axis
 - c) N. A.
 - d) Structure

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Optical Fiber Communication (BTN06609)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any Four. 16

- With B.D., Explain optical fiber communication system briefly.
- Explain intrinsic absorption mechanism in fiber optics.
- Explain scattering losses observed in fiber optics.
- What is dispersion? Compare dispersions in different types of fiber optics.
- Briefly write about connectors of fiber optics.

Q.3 Solve any Two. 12

- Explain structure of surface emitting LED.
- An optical fiber has a numerical aperture of 0.20 and a cladding refractive index of 1.59. Determine.
 - The acceptance angle for the fiber in water which has a refractive index of 1.33
 - The critical angle at the core-cladding interface
- What are splices? Explain techniques for splicing.

Section – II

Q.4 Solve any Four. 16

- Explain the optical detection principle in brief.
- Explain the optical network modes in short.
- Write a short note on WDM.
- Explain OTDM.
- Explain the Transmitter design of optical communication System.

Q.5 Solve any Two. 12

- Explain the operation of Optical TDM. What are its advantages over Electrical TDM?
- Explain in detail the receiver design for optical communication System.
- Explain in detail structure and working of phototransistor.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A pixel p at coordinates (x, y) has neighbors whose coordinates are given by: $(x+1, y)$, $(x-1, y)$, $(x, y+1)$, $(x, y-1)$. This set of pixels is called _____.
 - a) 4-neighbors of p
 - b) Diagonal neighbors
 - c) 8-neighbors
 - d) None of the mentioned
- 2) Which of the following is method of estimating the degradation function?
 - a) Image observation
 - b) Experimentation
 - c) Mathematical modeling
 - d) All of above
- 3) In frequency domain, what is the equivalent operation of product of two functions in spatial domain?
 - a) Correlation
 - b) Convolution
 - c) Fourier transform
 - d) Fast Fourier transform
- 4) Process used to correct the power law response is called as _____.
 - a) Alpha correction
 - b) Luminance correction
 - c) Gamma correction
 - d) None of the above
- 5) If the images are displayed using 8-bits, then, what is the range of the value of an image if the image is a result of subtraction operation?
 - a) 0 to 255
 - b) 0 to 511
 - c) -255 to 0
 - d) None of the mentioned
- 6) What is the full form of CDF?
 - a) Cumulative density function
 - b) Contour derived function
 - c) Cumulative distribution function
 - d) None of the mentioned
- 7) What is the sum of all components of a normalized histogram?
 - a) 1
 - b) -1
 - c) 0
 - d) None of the mentioned
- 8) Histogram matching is also called as _____.
 - a) Histogram equalization
 - b) Contrast stretching
 - c) Histogram specification
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data whenever needed and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is contrast stretching of an image and how it can be achieved?
 - b) Explain Image sampling and quantization.
 - c) What are applications of Dilation and Erosion in image morphology?
 - d) Explain types Low pass filters used for image smoothing.
 - e) Explain log transform and power law transform.
- Q.3 Attempt any Two. 12**
- a) What is gray level slicing and bit plane slicing? What are its applications?
 - b) Explain Regional Processing method for edge linking.
 - c) Explain in detail Discrete Fourier Transform.

Section – II

- Q.4 Attempt any Four. 16**
- a) What is Aperture problem in 2D motion estimation?
 - b) Explain estimation of degradation function by modeling.
 - c) Explain Video Frame classifications.
 - d) Explain Exhaustive block matching algorithms.
 - e) Difference between progressive versus interlaced scans.
- Q.5 Attempt any Two. 12**
- a) Explain Inverse Filter for image restoration.
 - b) What are sampling structures for Digital Video?
 - c) Difference between 2-D motion Vs optical flow.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Histogram matching is also called as _____.
 a) Histogram equalization b) Contrast stretching
 c) Histogram specification d) None of the above
- 2) Which of the method is not related to region based segmentation?
 a) Thresholding b) Merging & splitting
 c) Region growing d) Hough transform
- 3) Which of the following second order operator is most robust to noise in edge filtering?
 a) Sobel operator b) Laplacian operator
 c) Laplacian of Gaussian operator d) Prewitt operator
- 4) Process that increases the dynamic range of gray levels in an image is called as _____.
 a) Linear stretching b) Contrast stretching
 c) Contrast matching d) All of above
- 5) Block motion model can't handle _____ motion.
 a) Translational b) Rotational
 c) Translational and rotational d) None of above
- 6) Which of the following is implementation issue of phase correlation method?
 a) Boundary effects
 b) Spectral leakage due to non integer motion vectors
 c) Range of displacement estimates
 d) All of above
- 7) Which scanning method is used for Television signal?
 a) Progressive b) Interlaced
 c) Progressive or interlaced d) None of above

- 8) A pixel p at coordinates (x, y) has neighbors whose coordinates are given by: $(x+1, y)$, $(x-1, y)$, $(x, y+1)$, $(x, y-1)$
This set of pixels is called _____.
- a) 4-neighbors of p b) Diagonal neighbors
c) 8-neighbors d) None of the mentioned
- 9) Which of the following is method of estimating the degradation function?
- a) Image observation b) Experimentation
c) Mathematical modeling d) All of above
- 10) In frequency domain, what is the equivalent operation of product of two functions in spatial domain?
- a) Correlation b) Convolution
c) Fourier transform d) Fast Fourier transform
- 11) Process used to correct the power law response is called as _____.
- a) Alpha correction b) Luminance correction
c) Gamma correction d) None of the above
- 12) If the images are displayed using 8-bits, then, what is the range of the value of an image if the image is a result of subtraction operation?
- a) 0 to 255 b) 0 to 511
c) -255 to 0 d) None of the mentioned
- 13) What is the full form of CDF?
- a) Cumulative density function b) Contour derived function
c) Cumulative distribution function d) None of the mentioned
- 14) What is the sum of all components of a normalized histogram?
- a) 1 b) -1
c) 0 d) None of the mentioned

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data whenever needed and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is contrast stretching of an image and how it can be achieved?
 - b) Explain Image sampling and quantization.
 - c) What are applications of Dilation and Erosion in image morphology?
 - d) Explain types Low pass filters used for image smoothing.
 - e) Explain log transform and power law transform.
- Q.3 Attempt any Two. 12**
- a) What is gray level slicing and bit plane slicing? What are its applications?
 - b) Explain Regional Processing method for edge linking.
 - c) Explain in detail Discrete Fourier Transform.

Section – II

- Q.4 Attempt any Four. 16**
- a) What is Aperture problem in 2D motion estimation?
 - b) Explain estimation of degradation function by modeling.
 - c) Explain Video Frame classifications.
 - d) Explain Exhaustive block matching algorithms.
 - e) Difference between progressive versus interlaced scans.
- Q.5 Attempt any Two. 12**
- a) Explain Inverse Filter for image restoration.
 - b) What are sampling structures for Digital Video?
 - c) Difference between 2-D motion Vs optical flow.

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)**

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data whenever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Process that increases the dynamic range of gray levels in an image is called as _____.
 - a) Linear stretching
 - b) Contrast stretching
 - c) Contrast matching
 - d) All of above
- 2) Block motion model can't handle _____ motion.
 - a) Translational
 - b) Rotational
 - c) Translational and rotational
 - d) None of above
- 3) Which of the following is implementation issue of phase correlation method?
 - a) Boundary effects
 - b) Spectral leakage due to non integer motion vectors
 - c) Range of displacement estimates
 - d) All of above
- 4) Which scanning method is used for Television signal?
 - a) Progressive
 - b) Interlaced
 - c) Progressive or interlaced
 - d) None of above
- 5) A pixel p at coordinates (x, y) has neighbors whose coordinates are given by: $(x+1, y)$, $(x-1, y)$, $(x, y+1)$, $(x, y-1)$. This set of pixels is called _____.
 - a) 4-neighbors of p
 - b) Diagonal neighbors
 - c) 8-neighbors
 - d) None of the mentioned
- 6) Which of the following is method of estimating the degradation function?
 - a) Image observation
 - b) Experimentation
 - c) Mathematical modeling
 - d) All of above
- 7) In frequency domain, what is the equivalent operation of product of two functions in spatial domain?
 - a) Correlation
 - b) Convolution
 - c) Fourier transform
 - d) Fast Fourier transform

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data whenever needed and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is contrast stretching of an image and how it can be achieved?
 - b) Explain Image sampling and quantization.
 - c) What are applications of Dilation and Erosion in image morphology?
 - d) Explain types Low pass filters used for image smoothing.
 - e) Explain log transform and power law transform.
- Q.3 Attempt any Two. 12**
- a) What is gray level slicing and bit plane slicing? What are its applications?
 - b) Explain Regional Processing method for edge linking.
 - c) Explain in detail Discrete Fourier Transform.

Section – II

- Q.4 Attempt any Four. 16**
- a) What is Aperture problem in 2D motion estimation?
 - b) Explain estimation of degradation function by modeling.
 - c) Explain Video Frame classifications.
 - d) Explain Exhaustive block matching algorithms.
 - e) Difference between progressive versus interlaced scans.
- Q.5 Attempt any Two. 12**
- a) Explain Inverse Filter for image restoration.
 - b) What are sampling structures for Digital Video?
 - c) Difference between 2-D motion Vs optical flow.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.**14**

- 1) What is the full form of CDF?
 - a) Cumulative density function
 - b) Contour derived function
 - c) Cumulative distribution function
 - d) None of the mentioned
- 2) What is the sum of all components of a normalized histogram?
 - a) 1
 - b) -1
 - c) 0
 - d) None of the mentioned
- 3) Histogram matching is also called as _____.
 - a) Histogram equalization
 - b) Contrast stretching
 - c) Histogram specification
 - d) None of the above
- 4) Which of the method is not related to region based segmentation?
 - a) Thresholding
 - b) Merging & splitting
 - c) Region growing
 - d) Hough transform
- 5) Which of the following second order operator is most robust to noise in edge filtering?
 - a) Sobel operator
 - b) Laplacian operator
 - c) Laplacian of Gaussian operator
 - d) Prewitt operator
- 6) Process that increases the dynamic range of gray levels in an image is called as _____.
 - a) Linear stretching
 - b) Contrast stretching
 - c) Contrast matching
 - d) All of above
- 7) Block motion model can't handle _____ motion.
 - a) Translational
 - b) Rotational
 - c) Translational and rotational
 - d) None of above
- 8) Which of the following is implementation issue of phase correlation method?
 - a) Boundary effects
 - b) Spectral leakage due to non integer motion vectors
 - c) Range of displacement estimates
 - d) All of above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image and Video Processing (BTN06610)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data whenever needed and mention it clearly.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is contrast stretching of an image and how it can be achieved?
 - b) Explain Image sampling and quantization.
 - c) What are applications of Dilation and Erosion in image morphology?
 - d) Explain types Low pass filters used for image smoothing.
 - e) Explain log transform and power law transform.
- Q.3 Attempt any Two. 12**
- a) What is gray level slicing and bit plane slicing? What are its applications?
 - b) Explain Regional Processing method for edge linking.
 - c) Explain in detail Discrete Fourier Transform.

Section – II

- Q.4 Attempt any Four. 16**
- a) What is Aperture problem in 2D motion estimation?
 - b) Explain estimation of degradation function by modeling.
 - c) Explain Video Frame classifications.
 - d) Explain Exhaustive block matching algorithms.
 - e) Difference between progressive versus interlaced scans.
- Q.5 Attempt any Two. 12**
- a) Explain Inverse Filter for image restoration.
 - b) What are sampling structures for Digital Video?
 - c) Difference between 2-D motion Vs optical flow.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Multimedia Communication Technology (BTN06611)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Which type of quantization is most preferable for audio signals for a human ear?
 - a) Uniform quantization
 - b) Non uniform quantization
 - c) Uniform & Non uniform quantization
 - d) None of the mentioned
- 2) The number of lines per field in the United States TV system is _____.
 - a) 262 $\frac{1}{2}$
 - b) 525
 - c) 30
 - d) 60
- 3) The signals sent by the TV transmitter to ensure correct scanning in the receiver are called _____.
 - a) sync
 - b) chroma
 - c) luminance
 - d) video
- 4) In India, which monochrome TV system is used _____.
 - a) 525 line system
 - b) 625 line system
 - c) 819 line system
 - d) None of these
- 5) TV broadcasting system in India is as per CCIR _____.
 - a) system B
 - b) system I
 - c) system M
 - d) system X
- 6) The value of kell factor is about _____.
 - a) 0.3
 - b) 0.5
 - c) 0.7
 - d) 0.9
- 7) Moving Picture Experts Group (MPEG) is used to compress _____.
 - a) Frames
 - b) Images
 - c) Audio
 - d) Video
- 8) The outdoor unit is connected to indoor DTH received by _____.
 - a) Wave Guide
 - b) Coaxial cable
 - c) Twin flat feeder
 - d) Optical fiber

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Multimedia Communication Technology (BTN06611)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four. 16
a) Draw and explain the color composite video signal.
b) What are the different methods of color mixing?
c) Compare LCD Vs LED.
d) What is the difference between PAL NTSC?
e) List out the different types of video formats.

Q.3 Attempt any Two. 12
a) What is frequency interleaving? With neat sketch explain how this method is helpful for accommodating colour information also explain what is colour sub carrier frequency.
b) Draw a block diagram of an NTSC Colour T.V. Transmitter and describe each block.
c) Why is compression essential in multimedia applications? Explain MPEG in detail.

Section – II

Q.4 Attempt any Four. 16
a) What are the drawbacks of Mp3?
b) What is DVD? State its advantages and types?
c) Signal to Quantization noise ratio.
d) Explain the Arithmetic Coding.
e) What is The Difference In Linear Quantization And Non-linear Quantization?

Q.5 Attempt any Two. 12
a) What do you mean by lossy and lossless compression?
b) What is Blue Ray Disc? Give its specifications.
c) Explain in detail about the digitization principles.

Seat No.	
---------------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Multimedia Communication Technology (BTN06611)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) The outdoor unit is connected to indoor DTH received by _____.
 - a) Wave Guide
 - b) Coaxial cable
 - c) Twin flat feeder
 - d) Optical fiber
- 2) Compact disc surface doesn't wear out because the sensor is _____.
 - a) Electric
 - b) Magnetic
 - c) Mechanical
 - d) Optical
- 3) I signal in NTSC colour TV system is located at 57° with respect to _____.
 - a) Colour burst
 - b) R – Y
 - c) B – Y
 - d) G – Y
- 4) In Audio and Video Compression, voice is sampled at 8000 samples per second with _____.
 - a) 5 bits per sample
 - b) 6 bits per sample
 - c) 7 bits per sample
 - d) 8 bits per sample
- 5) For speech, we need to compress the digitize signals at _____.
 - a) 128 Khz
 - b) 256 Khz
 - c) 64 Khz
 - d) 1152 Khz
- 6) Moving Picture Experts Group (MPEG-2), was designed for high-quality DVD with a data rate of _____.
 - a) 3 to 6 Mbps
 - b) 4 to 6 Mbps
 - c) 5 to 6 Mbps
 - d) 6 to 6 Mbps
- 7) In PAL system, phase of R-Y signal is changed every alternate line by _____.
 - a) 90°
 - b) 180°
 - c) 270°
 - d) 360°
- 8) Which type of quantization is most preferable for audio signals for a human ear?
 - a) Uniform quantization
 - b) Non uniform quantization
 - c) Uniform & Non uniform quantization
 - d) None of the mentioned

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Multimedia Communication Technology (BTN06611)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four. 16

- Draw and explain the color composite video signal.
- What are the different methods of color mixing?
- Compare LCD Vs LED.
- What is the difference between PAL NTSC?
- List out the different types of video formats.

Q.3 Attempt any Two. 12

- What is frequency interleaving? With neat sketch explain how this method is helpful for accommodating colour information also explain what is colour sub carrier frequency.
- Draw a block diagram of an NTSC Colour T.V. Transmitter and describe each block.
- Why is compression essential in multimedia applications? Explain MPEG in detail.

Section – II

Q.4 Attempt any Four. 16

- What are the drawbacks of Mp3?
- What is DVD? State its advantages and types?
- Signal to Quantization noise ratio.
- Explain the Arithmetic Coding.
- What is The Difference In Linear Quantization And Non-linear Quantization?

Q.5 Attempt any Two. 12

- What do you mean by lossy and lossless compression?
- What is Blue Ray Disc? Give its specifications.
- Explain in detail about the digitization principles.

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Multimedia Communication Technology (BTN06611)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four. 16
a) Draw and explain the color composite video signal.
b) What are the different methods of color mixing?
c) Compare LCD Vs LED.
d) What is the difference between PAL NTSC?
e) List out the different types of video formats.

Q.3 Attempt any Two. 12
a) What is frequency interleaving? With neat sketch explain how this method is helpful for accommodating colour information also explain what is colour sub carrier frequency.
b) Draw a block diagram of an NTSC Colour T.V. Transmitter and describe each block.
c) Why is compression essential in multimedia applications? Explain MPEG in detail.

Section – II

Q.4 Attempt any Four. 16
a) What are the drawbacks of Mp3?
b) What is DVD? State its advantages and types?
c) Signal to Quantization noise ratio.
d) Explain the Arithmetic Coding.
e) What is The Difference In Linear Quantization And Non-linear Quantization?

Q.5 Attempt any Two. 12
a) What do you mean by lossy and lossless compression?
b) What is Blue Ray Disc? Give its specifications.
c) Explain in detail about the digitization principles.

- 10)** Which type of quantization is most preferable for audio signals for a human ear?
- a) Uniform quantization
 - b) Non uniform quantization
 - c) Uniform & Non uniform quantization
 - d) None of the mentioned
- 11)** The number of lines per field in the United States TV system is _____.
- a) 262 $\frac{1}{2}$
 - b) 525
 - c) 30
 - d) 60
- 12)** The signals sent by the TV transmitter to ensure correct scanning in the receiver are called _____.
- a) sync
 - b) chroma
 - c) luminance
 - d) video
- 13)** In India, which monochrome TV system is used _____.
- a) 525 line system
 - b) 625 line system
 - c) 819 line system
 - d) None of these
- 14)** TV broadcasting system in India is as per CCIR _____.
- a) system B
 - b) system I
 - c) system M
 - d) system X

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Multimedia Communication Technology (BTN06611)

Day & Date: Wednesday, 29-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four. 16

- Draw and explain the color composite video signal.
- What are the different methods of color mixing?
- Compare LCD Vs LED.
- What is the difference between PAL NTSC?
- List out the different types of video formats.

Q.3 Attempt any Two. 12

- What is frequency interleaving? With neat sketch explain how this method is helpful for accommodating colour information also explain what is colour sub carrier frequency.
- Draw a block diagram of an NTSC Colour T.V. Transmitter and describe each block.
- Why is compression essential in multimedia applications? Explain MPEG in detail.

Section – II

Q.4 Attempt any Four. 16

- What are the drawbacks of Mp3?
- What is DVD? State its advantages and types?
- Signal to Quantization noise ratio.
- Explain the Arithmetic Coding.
- What is The Difference In Linear Quantization And Non-linear Quantization?

Q.5 Attempt any Two. 12

- What do you mean by lossy and lossless compression?
- What is Blue Ray Disc? Give its specifications.
- Explain in detail about the digitization principles.

Seat No.	
----------	--

Set **P**

**T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)**

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Change in output of sensor with change in input is _____.
 - a) Slew rate
 - b) Sensitivity
 - c) Power
 - d) Error
- 2) Thermocouple generate output voltage according to change in _____.
 - a) Humidity
 - b) Pressure
 - c) Weight
 - d) Temperature
- 3) _____ is the generation of electric charge by a crystalline material upon subjecting it to stress.
 - a) Hall Effect
 - b) Rectification
 - c) Heat Transfer Law
 - d) Piezoelectric Effect
- 4) _____ is the ability of the sensor to indicate the same output over a period of time for a constant input.
 - a) Error
 - b) Stability
 - c) Drift
 - d) None of the mentioned
- 5) The change in any linear dimension (length, width, or height) is called as _____.
 - a) Liner Expansion
 - b) Non-Linear Expansion
 - c) Angular Expansion
 - d) None of the mentioned
- 6) Loudspeaker is example of _____.
 - a) Rectifier
 - b) Microcontroller
 - c) Transducer
 - d) None of these
- 7) Converts the physical quantity to be measured into a continuously changing voltage or current _____.
 - a) Digital Sensor
 - b) Analog Sensor
 - c) Actuator
 - d) None of these
- 8) Arduino uses _____ as a basic programming language.
 - a) C/C++
 - b) Python
 - c) Java
 - d) None of these

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four **16**

- a) Define transducer. Explain different types of transducers with examples.
- b) Define following terms.
 - 1) Drift
 - 2) Resolution
 - 3) Error
 - 4) Accuracy
- c) Explain temperature and thermal properties of a material with thermal expansion, temperature scales with conversion units and change in resistance.
- d) Explain piezoelectric effect with neat diagram. State applications of piezoelectric sensors.
- e) Describe working of ADC with neat block diagram.

Q.3 Attempt Any Two **12**

- a) Describe Current generators, Voltage references and Oscillators as excitation circuits.
- b) State various heat transfer modes. Explain each mode in detail with diagram. Give examples of sensors used to measure heat.
- c) Describe various dynamic models of Sensor Elements with differential equations.

Section – II

Q.4 Attempt Any Four **16**

- a) Draw neat labeled pin diagram of Arduino Uno board. State and explain various features associated with Arduino UNO board.
- b) Draw block diagram of Raspberry Pi board with peripherals. Explain each peripheral with specifications.
- c) Write a code to interface IR sensor with Arduino. Draw necessary connection diagram.
- d) Write a code to control brightness of an LED using Raspberry Pi. Draw appropriate interfacing diagram with input output pins.
- e) Design a circuit and write a program to detect a human being with buzzer indicator by using Arduino/Raspberry Pi.

Q.5 Attempt Any Two

- a) Write a program and draw connection diagram to interface LDR with Raspberry Pi board. State various features of Raspberry Pi.
- b) Design circuit and write a program to detect obstacle using IR sensor and Arduino. Compare Analog sensors w.r.t. Digital sensors.
- c) Detect an obstacle present in front of a person using interfacing of ultrasonic sensor with Arduino Uno. Compare sensors w.r.t. actuators.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Arduino uses _____ as a basic programming language.
 - a) C/C++
 - b) Python
 - c) Java
 - d) None of these
- 2) Arduino Uno consists of _____ of flash program memory?
 - a) 16 Kbyte
 - b) 32 Kbyte
 - c) 64 Kbyte
 - d) 512 Kbyte
- 3) Arduino UNO uses _____ microcontroller.
 - a) 8051
 - b) PIC16F877
 - c) Atmega328
 - d) Atmega2560
- 4) How many times does the setup() function run on every startup of the Arduino System?
 - a) 01
 - b) 02
 - c) 04
 - d) 08
- 5) Raspberry Pi-3 supports inbuilt _____.
 - a) HDMI connector
 - b) USB Connectors
 - c) Micro SD Slot
 - d) All of the mentioned
- 6) I2C communication signals SDA and SCL are associated in Raspberry-Pi to _____.
 - a) GPIO 1 & GPIO 2
 - b) GPIO 2 & GPIO 3
 - c) GPIO 7 & GPIO 8
 - d) GPIO 14 & GPIO 15
- 7) How many USB ports are present in Raspberry Pi 3?
 - a) 01
 - b) 02
 - c) 04
 - d) 08
- 8) Change in output of sensor with change in input is _____.
 - a) Slew rate
 - b) Sensitivity
 - c) Power
 - d) Error
- 9) Thermocouple generate output voltage according to change in _____.
 - a) Humidity
 - b) Pressure
 - c) Weight
 - d) Temperature

- 10) _____ is the generation of electric charge by a crystalline material upon subjecting it to stress.
- a) Hall Effect
 - b) Rectification
 - c) Heat Transfer Law
 - d) Piezoelectric Effect
- 11) _____ is the ability of the sensor to indicate the same output over a period of time for a constant input.
- a) Error
 - b) Stability
 - c) Drift
 - d) None of the mentioned
- 12) The change in any linear dimension (length, width, or height) is called as _____.
- a) Linear Expansion
 - b) Non-Linear Expansion
 - c) Angular Expansion
 - d) None of the mentioned
- 13) Loudspeaker is example of _____.
- a) Rectifier
 - b) Microcontroller
 - c) Transducer
 - d) None of these
- 14) Converts the physical quantity to be measured into a continuously changing voltage or current _____.
- a) Digital Sensor
 - b) Analog Sensor
 - c) Actuator
 - d) None of these

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four

16

- Define transducer. Explain different types of transducers with examples.
- Define following terms.
 - Drift
 - Resolution
 - Error
 - Accuracy
- Explain temperature and thermal properties of a material with thermal expansion, temperature scales with conversion units and change in resistance.
- Explain piezoelectric effect with neat diagram. State applications of piezoelectric sensors.
- Describe working of ADC with neat block diagram.

Q.3 Attempt Any Two

12

- Describe Current generators, Voltage references and Oscillators as excitation circuits.
- State various heat transfer modes. Explain each mode in detail with diagram. Give examples of sensors used to measure heat.
- Describe various dynamic models of Sensor Elements with differential equations.

Section – II

Q.4 Attempt Any Four

16

- Draw neat labeled pin diagram of Arduino Uno board. State and explain various features associated with Arduino UNO board.
- Draw block diagram of Raspberry Pi board with peripherals. Explain each peripheral with specifications.
- Write a code to interface IR sensor with Arduino. Draw necessary connection diagram.
- Write a code to control brightness of an LED using Raspberry Pi. Draw appropriate interfacing diagram with input output pins.
- Design a circuit and write a program to detect a human being with buzzer indicator by using Arduino/Raspberry Pi.

Q.5 Attempt Any Two

- a) Write a program and draw connection diagram to interface LDR with Raspberry Pi board. State various features of Raspberry Pi.
- b) Design circuit and write a program to detect obstacle using IR sensor and Arduino. Compare Analog sensors w.r.t. Digital sensors.
- c) Detect an obstacle present in front of a person using interfacing of ultrasonic sensor with Arduino Uno. Compare sensors w.r.t. actuators.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) How many times does the setup() function run on every startup of the Arduino System?
 - a) 01
 - b) 02
 - c) 04
 - d) 08
- 2) Raspberry Pi-3 supports inbuilt _____.
 - a) HDMI connector
 - b) USB Connectors
 - c) Micro SD Slot
 - d) All of the mentioned
- 3) I2C communication signals SDA and SCL are associated in Raspberry-Pi to _____.
 - a) GPIO 1 & GPIO 2
 - b) GPIO 2 & GPIO 3
 - c) GPIO 7 & GPIO 8
 - d) GPIO 14 & GPIO 15
- 4) How many USB ports are present in Raspberry Pi 3?
 - a) 01
 - b) 02
 - c) 04
 - d) 08
- 5) Change in output of sensor with change in input is _____.
 - a) Slew rate
 - b) Sensitivity
 - c) Power
 - d) Error
- 6) Thermocouple generate output voltage according to change in _____.
 - a) Humidity
 - b) Pressure
 - c) Weight
 - d) Temperature
- 7) _____ is the generation of electric charge by a crystalline material upon subjecting it to stress.
 - a) Hall Effect
 - b) Rectification
 - c) Heat Transfer Law
 - d) Piezoelectric Effect
- 8) _____ is the ability of the sensor to indicate the same output over a period of time for a constant input.
 - a) Error
 - b) Stability
 - c) Drift
 - d) None of the mentioned

- 9) The change in any linear dimension (length, width, or height) is called as _____.
- a) Linear Expansion
 - b) Non-Linear Expansion
 - c) Angular Expansion
 - d) None of the mentioned
- 10) Loudspeaker is example of _____.
- a) Rectifier
 - b) Microcontroller
 - c) Transducer
 - d) None of these
- 11) Converts the physical quantity to be measured into a continuously changing voltage or current _____.
- a) Digital Sensor
 - b) Analog Sensor
 - c) Actuator
 - d) None of these
- 12) Arduino uses _____ as a basic programming language.
- a) C/C++
 - b) Python
 - c) Java
 - d) None of these
- 13) Arduino Uno consists of _____ of flash program memory?
- a) 16 Kbyte
 - b) 32 Kbyte
 - c) 64 Kbyte
 - d) 512 Kbyte
- 14) Arduino UNO uses _____ microcontroller.
- a) 8051
 - b) PIC16F877
 - c) Atmega328
 - d) Atmega2560

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four

16

- Define transducer. Explain different types of transducers with examples.
- Define following terms.
 - Drift
 - Resolution
 - Error
 - Accuracy
- Explain temperature and thermal properties of a material with thermal expansion, temperature scales with conversion units and change in resistance.
- Explain piezoelectric effect with neat diagram. State applications of piezoelectric sensors.
- Describe working of ADC with neat block diagram.

Q.3 Attempt Any Two

12

- Describe Current generators, Voltage references and Oscillators as excitation circuits.
- State various heat transfer modes. Explain each mode in detail with diagram. Give examples of sensors used to measure heat.
- Describe various dynamic models of Sensor Elements with differential equations.

Section – II

Q.4 Attempt Any Four

16

- Draw neat labeled pin diagram of Arduino Uno board. State and explain various features associated with Arduino UNO board.
- Draw block diagram of Raspberry Pi board with peripherals. Explain each peripheral with specifications.
- Write a code to interface IR sensor with Arduino. Draw necessary connection diagram.
- Write a code to control brightness of an LED using Raspberry Pi. Draw appropriate interfacing diagram with input output pins.
- Design a circuit and write a program to detect a human being with buzzer indicator by using Arduino/Raspberry Pi.

Q.5 Attempt Any Two

- a) Write a program and draw connection diagram to interface LDR with Raspberry Pi board. State various features of Raspberry Pi.
- b) Design circuit and write a program to detect obstacle using IR sensor and Arduino. Compare Analog sensors w.r.t. Digital sensors.
- c) Detect an obstacle present in front of a person using interfacing of ultrasonic sensor with Arduino Uno. Compare sensors w.r.t. actuators.

- 10) Change in output of sensor with change in input is _____.
- a) Slew rate
 - b) Sensitivity
 - c) Power
 - d) Error
- 11) Thermocouple generate output voltage according to change in _____.
- a) Humidity
 - b) Pressure
 - c) Weight
 - d) Temperature
- 12) _____ is the generation of electric charge by a crystalline material upon subjecting it to stress.
- a) Hall Effect
 - b) Rectification
 - c) Heat Transfer Law
 - d) Piezoelectric Effect
- 13) _____ is the ability of the sensor to indicate the same output over a period of time for a constant input.
- a) Error
 - b) Stability
 - c) Drift
 - d) None of the mentioned
- 14) The change in any linear dimension (length, width, or height) is called as _____.
- a) Liner Expansion
 - b) Non-Linear Expansion
 - c) Angular Expansion
 - d) None of the mentioned

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Sensors and Applications (BTN06605)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four **16**

- a) Define transducer. Explain different types of transducers with examples.
- b) Define following terms.
 - 1) Drift
 - 2) Resolution
 - 3) Error
 - 4) Accuracy
- c) Explain temperature and thermal properties of a material with thermal expansion, temperature scales with conversion units and change in resistance.
- d) Explain piezoelectric effect with neat diagram. State applications of piezoelectric sensors.
- e) Describe working of ADC with neat block diagram.

Q.3 Attempt Any Two **12**

- a) Describe Current generators, Voltage references and Oscillators as excitation circuits.
- b) State various heat transfer modes. Explain each mode in detail with diagram. Give examples of sensors used to measure heat.
- c) Describe various dynamic models of Sensor Elements with differential equations.

Section – II

Q.4 Attempt Any Four **16**

- a) Draw neat labeled pin diagram of Arduino Uno board. State and explain various features associated with Arduino UNO board.
- b) Draw block diagram of Raspberry Pi board with peripherals. Explain each peripheral with specifications.
- c) Write a code to interface IR sensor with Arduino. Draw necessary connection diagram.
- d) Write a code to control brightness of an LED using Raspberry Pi. Draw appropriate interfacing diagram with input output pins.
- e) Design a circuit and write a program to detect a human being with buzzer indicator by using Arduino/Raspberry Pi.

Q.5 Attempt Any Two

- a) Write a program and draw connection diagram to interface LDR with Raspberry Pi board. State various features of Raspberry Pi.
- b) Design circuit and write a program to detect obstacle using IR sensor and Arduino. Compare Analog sensors w.r.t. Digital sensors.
- c) Detect an obstacle present in front of a person using interfacing of ultrasonic sensor with Arduino Uno. Compare sensors w.r.t. actuators.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer book page no.3. each question carries one marks.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options

14

- 1) What is the primary advantage of open-source software?
 - a) It is always free of charge
 - b) It is guaranteed to be bug-free
 - c) It allows users to customize and modify the software to meet their specific needs
 - d) It provides better technical support than proprietary software
- 2) Which license grants users the freedom to use, modify, and distribute open-source software while also requiring derivative works to be licensed under the same terms?
 - a) Apache License
 - b) BSD License
 - c) GNU General Public License (GPL)
 - d) MIT License
- 3) What is the purpose of partitioning a hard disk during the installation of an operating system?
 - a) To allocate space for system files only
 - b) To separate user files from system files
 - c) To create multiple logical drives within a single physical disk
 - d) To improve disk performance and organization
- 4) Which command-line utility is commonly used for basic file system management tasks in Linux?

a) ls	b) Cp
c) Mv	d) fdisk
- 5) In the context of an open-source operating system, what does process management involve?
 - a) Creating new partitions on the hard disk.
 - b) Monitoring network traffic.
 - c) Controlling and coordinating the execution of programs.
 - d) Setting up and managing user accounts.

- 6) Which task is commonly associated with the system administrator's responsibility in managing backup operations?
- a) Updating system software
 - b) Allocating disk space
 - c) Monitoring network security
 - d) Ensuring data integrity and recovery
- 7) Which open-source software is commonly used for configuring Apache web servers?
- a) MySQL
 - b) PHP
 - c) Apache Tomcat
 - d) Apache HTTP Server
- 8) What is the main function of a DHCP server in a network environment?
- a) Assigning IP addresses to network devices
 - b) Transferring files between clients and servers
 - c) Hosting websites and serving web pages
 - d) Managing email communication
- 9) What is the primary purpose of executing a shell script in an open-source operating system?
- a) To compile source code
 - b) To run system commands
 - c) To create user accounts
 - d) To configure network settings
- 10) What is the function of control structures in shell scripting?
- a) To define functions and subroutines
 - b) To handle system signals and interrupts
 - c) To perform arithmetic operations
 - d) To control the flow of execution based on conditions
- 11) What is the main difference between distributed and non-distributed VCS?
- a) Distributed VCS allows offline access to repositories
 - b) Non-distributed VCS supports larger file sizes
 - c) Distributed VCS is faster in handling large codebases
 - d) Non-distributed VCS provides stronger data encryption
- 12) Which of the following is a cloud-based solution for Git repositories?
- a) Github
 - b) Gitlab
 - c) BitBucket
 - d) All of the above
- 13) What command is used to commit changes to the local repository?
- a) git init
 - b) git clone
 - c) git commit
 - d) git add
- 14) What does <HEAD> represent in Git?
- a) The most recent commit is in the repository
 - b) The main branch of the repository
 - c) The current working directory
 - d) The parent commit of the current branch

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks

Section – I

Q.2 Attempt any Four **16**

- a) List and explain the advantages of using open source software.
- b) What are some applications of open source software in various domains?
- c) What are IP tables? How can IP tables be used to secure Linux servers? Explain how firewall rules can be created and configured using IP tables.
- d) Explain the concept of sed (stream editor) in Linux and how it can be used for text manipulation tasks.
- e) What are the key responsibilities of a system administrator in Linux? How do these responsibilities differ from those of a network administrator?

Q.3 Attempt any Two **12**

- a) What are the steps involved in installing Linux in a multiboot environment, and what considerations should be taken into account for hard disk partitioning and swap space allocation?
- b) What are some common commands for file manipulation in Linux, including piping and redirection, and how do they work?
- c) What is backup? How can backup be used to protect system data in Linux? Discuss different backup options and their pros and cons.

Section – II

Q.4 Attempt any Four **16**

- a) What is a DNS server? How can DNS servers be configured in Linux? Discuss different DNS server software options and their key features.
- b) What are the steps involved in obtaining and installing Git on your system? Are there any specific requirements or considerations?
- c) What are control structures in Bash shell scripts? How can if statements, for loops, and while loops be used to control program flow?
- d) What is script control in Bash shell programming? Explain how signals can be used to interrupt or terminate Bash shell scripts.
- e) What is the significance of checking the status of a repository using the "git status" command? How does it help in managing changes?

Q.5 Attempt any Two

- a) How can Bash shell scripts be used to interact with the web? Discuss different options for downloading web pages, parsing data from web pages, and working with URLs in Bash shell scripts.
- b) What are the different ways to remove files in Git? How does "git reset" remove staged files, and how does "git rm" remove committed files?
- c) What is the process of checking out a branch in Git? How does it switch the working directory to a different branch and what are the implications of this action?

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer book page no.3. each question carries one marks.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options**14**

- 1) What is the main function of a DHCP server in a network environment?
 - a) Assigning IP addresses to network devices
 - b) Transferring files between clients and servers
 - c) Hosting websites and serving web pages
 - d) Managing email communication
- 2) What is the primary purpose of executing a shell script in an open-source operating system?

a) To compile source code	b) To run system commands
c) To create user accounts	d) To configure network settings
- 3) What is the function of control structures in shell scripting?
 - a) To define functions and subroutines
 - b) To handle system signals and interrupts
 - c) To perform arithmetic operations
 - d) To control the flow of execution based on conditions
- 4) What is the main difference between distributed and non-distributed VCS?
 - a) Distributed VCS allows offline access to repositories
 - b) Non-distributed VCS supports larger file sizes
 - c) Distributed VCS is faster in handling large codebases
 - d) Non-distributed VCS provides stronger data encryption
- 5) Which of the following is a cloud-based solution for Git repositories?

a) Github	b) Gitlab
c) BitBucket	d) All of the above
- 6) What command is used to commit changes to the local repository?

a) git init	b) git clone
c) git commit	d) git add
- 7) What does <HEAD> represent in Git?
 - a) The most recent commit is in the repository
 - b) The main branch of the repository
 - c) The current working directory
 - d) The parent commit of the current branch

- 8) What is the primary advantage of open-source software?
- a) It is always free of charge
 - b) It is guaranteed to be bug-free
 - c) It allows users to customize and modify the software to meet their specific needs
 - d) It provides better technical support than proprietary software
- 9) Which license grants users the freedom to use, modify, and distribute open-source software while also requiring derivative works to be licensed under the same terms?
- a) Apache License
 - b) BSD License
 - c) GNU General Public License (GPL)
 - d) MIT License
- 10) What is the purpose of partitioning a hard disk during the installation of an operating system?
- a) To allocate space for system files only
 - b) To separate user files from system files
 - c) To create multiple logical drives within a single physical disk
 - d) To improve disk performance and organization
- 11) Which command-line utility is commonly used for basic file system management tasks in Linux?
- a) ls
 - b) Cp
 - c) Mv
 - d) fdisk
- 12) In the context of an open-source operating system, what does process management involve?
- a) Creating new partitions on the hard disk.
 - b) Monitoring network traffic.
 - c) Controlling and coordinating the execution of programs.
 - d) Setting up and managing user accounts.
- 13) Which task is commonly associated with the system administrator's responsibility in managing backup operations?
- a) Updating system software
 - b) Allocating disk space
 - c) Monitoring network security
 - d) Ensuring data integrity and recovery
- 14) Which open-source software is commonly used for configuring Apache web servers?
- a) MySQL
 - b) PHP
 - c) Apache Tomcat
 - d) Apache HTTP Server

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks

Section – I

Q.2 Attempt any Four **16**

- a) List and explain the advantages of using open source software.
- b) What are some applications of open source software in various domains?
- c) What are IP tables? How can IP tables be used to secure Linux servers? Explain how firewall rules can be created and configured using IP tables.
- d) Explain the concept of sed (stream editor) in Linux and how it can be used for text manipulation tasks.
- e) What are the key responsibilities of a system administrator in Linux? How do these responsibilities differ from those of a network administrator?

Q.3 Attempt any Two **12**

- a) What are the steps involved in installing Linux in a multiboot environment, and what considerations should be taken into account for hard disk partitioning and swap space allocation?
- b) What are some common commands for file manipulation in Linux, including piping and redirection, and how do they work?
- c) What is backup? How can backup be used to protect system data in Linux? Discuss different backup options and their pros and cons.

Section – II

Q.4 Attempt any Four **16**

- a) What is a DNS server? How can DNS servers be configured in Linux? Discuss different DNS server software options and their key features.
- b) What are the steps involved in obtaining and installing Git on your system? Are there any specific requirements or considerations?
- c) What are control structures in Bash shell scripts? How can if statements, for loops, and while loops be used to control program flow?
- d) What is script control in Bash shell programming? Explain how signals can be used to interrupt or terminate Bash shell scripts.
- e) What is the significance of checking the status of a repository using the "git status" command? How does it help in managing changes?

Q.5 Attempt any Two

- a) How can Bash shell scripts be used to interact with the web? Discuss different options for downloading web pages, parsing data from web pages, and working with URLs in Bash shell scripts.
- b) What are the different ways to remove files in Git? How does "git reset" remove staged files, and how does "git rm" remove committed files?
- c) What is the process of checking out a branch in Git? How does it switch the working directory to a different branch and what are the implications of this action?

Seat No.	
----------	--

Set

R

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer book page no.3. each question carries one marks.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options**14**

- 1) What is the main difference between distributed and non-distributed VCS?
 - a) Distributed VCS allows offline access to repositories
 - b) Non-distributed VCS supports larger file sizes
 - c) Distributed VCS is faster in handling large codebases
 - d) Non-distributed VCS provides stronger data encryption
- 2) Which of the following is a cloud-based solution for Git repositories?
 - a) Github
 - b) Gitlab
 - c) BitBucket
 - d) All of the above
- 3) What command is used to commit changes to the local repository?
 - a) git init
 - b) git clone
 - c) git commit
 - d) git add
- 4) What does <HEAD> represent in Git?
 - a) The most recent commit is in the repository
 - b) The main branch of the repository
 - c) The current working directory
 - d) The parent commit of the current branch
- 5) What is the primary advantage of open-source software?
 - a) It is always free of charge
 - b) It is guaranteed to be bug-free
 - c) It allows users to customize and modify the software to meet their specific needs
 - d) It provides better technical support than proprietary software
- 6) Which license grants users the freedom to use, modify, and distribute open-source software while also requiring derivative works to be licensed under the same terms?
 - a) Apache License
 - b) BSD License
 - c) GNU General Public License (GPL)
 - d) MIT License

- 7) What is the purpose of partitioning a hard disk during the installation of an operating system?
- a) To allocate space for system files only
 - b) To separate user files from system files
 - c) To create multiple logical drives within a single physical disk
 - d) To improve disk performance and organization
- 8) Which command-line utility is commonly used for basic file system management tasks in Linux?
- a) ls
 - b) Cp
 - c) Mv
 - d) fdisk
- 9) In the context of an open-source operating system, what does process management involve?
- a) Creating new partitions on the hard disk.
 - b) Monitoring network traffic.
 - c) Controlling and coordinating the execution of programs.
 - d) Setting up and managing user accounts.
- 10) Which task is commonly associated with the system administrator's responsibility in managing backup operations?
- a) Updating system software
 - b) Allocating disk space
 - c) Monitoring network security
 - d) Ensuring data integrity and recovery
- 11) Which open-source software is commonly used for configuring Apache web servers?
- a) MySQL
 - b) PHP
 - c) Apache Tomcat
 - d) Apache HTTP Server
- 12) What is the main function of a DHCP server in a network environment?
- a) Assigning IP addresses to network devices
 - b) Transferring files between clients and servers
 - c) Hosting websites and serving web pages
 - d) Managing email communication
- 13) What is the primary purpose of executing a shell script in an open-source operating system?
- a) To compile source code
 - b) To run system commands
 - c) To create user accounts
 - d) To configure network settings
- 14) What is the function of control structures in shell scripting?
- a) To define functions and subroutines
 - b) To handle system signals and interrupts
 - c) To perform arithmetic operations
 - d) To control the flow of execution based on conditions

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks

Section – I

Q.2 Attempt any Four **16**

- a) List and explain the advantages of using open source software.
- b) What are some applications of open source software in various domains?
- c) What are IP tables? How can IP tables be used to secure Linux servers? Explain how firewall rules can be created and configured using IP tables.
- d) Explain the concept of sed (stream editor) in Linux and how it can be used for text manipulation tasks.
- e) What are the key responsibilities of a system administrator in Linux? How do these responsibilities differ from those of a network administrator?

Q.3 Attempt any Two **12**

- a) What are the steps involved in installing Linux in a multiboot environment, and what considerations should be taken into account for hard disk partitioning and swap space allocation?
- b) What are some common commands for file manipulation in Linux, including piping and redirection, and how do they work?
- c) What is backup? How can backup be used to protect system data in Linux? Discuss different backup options and their pros and cons.

Section – II

Q.4 Attempt any Four **16**

- a) What is a DNS server? How can DNS servers be configured in Linux? Discuss different DNS server software options and their key features.
- b) What are the steps involved in obtaining and installing Git on your system? Are there any specific requirements or considerations?
- c) What are control structures in Bash shell scripts? How can if statements, for loops, and while loops be used to control program flow?
- d) What is script control in Bash shell programming? Explain how signals can be used to interrupt or terminate Bash shell scripts.
- e) What is the significance of checking the status of a repository using the "git status" command? How does it help in managing changes?

Q.5 Attempt any Two

- a) How can Bash shell scripts be used to interact with the web? Discuss different options for downloading web pages, parsing data from web pages, and working with URLs in Bash shell scripts.
- b) What are the different ways to remove files in Git? How does "git reset" remove staged files, and how does "git rm" remove committed files?
- c) What is the process of checking out a branch in Git? How does it switch the working directory to a different branch and what are the implications of this action?

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer book page no.3. each question carries one marks.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options 14

- 1) Which task is commonly associated with the system administrator's responsibility in managing backup operations?
 - a) Updating system software
 - b) Allocating disk space
 - c) Monitoring network security
 - d) Ensuring data integrity and recovery
- 2) Which open-source software is commonly used for configuring Apache web servers?

a) MySQL	b) PHP
c) Apache Tomcat	d) Apache HTTP Server
- 3) What is the main function of a DHCP server in a network environment?
 - a) Assigning IP addresses to network devices
 - b) Transferring files between clients and servers
 - c) Hosting websites and serving web pages
 - d) Managing email communication
- 4) What is the primary purpose of executing a shell script in an open-source operating system?

a) To compile source code	b) To run system commands
c) To create user accounts	d) To configure network settings
- 5) What is the function of control structures in shell scripting?
 - a) To define functions and subroutines
 - b) To handle system signals and interrupts
 - c) To perform arithmetic operations
 - d) To control the flow of execution based on conditions
- 6) What is the main difference between distributed and non-distributed VCS?
 - a) Distributed VCS allows offline access to repositories
 - b) Non-distributed VCS supports larger file sizes
 - c) Distributed VCS is faster in handling large codebases
 - d) Non-distributed VCS provides stronger data encryption

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Open Source Technologies (BTN06606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks

Section – I

Q.2 Attempt any Four **16**

- a) List and explain the advantages of using open source software.
- b) What are some applications of open source software in various domains?
- c) What are IP tables? How can IP tables be used to secure Linux servers? Explain how firewall rules can be created and configured using IP tables.
- d) Explain the concept of sed (stream editor) in Linux and how it can be used for text manipulation tasks.
- e) What are the key responsibilities of a system administrator in Linux? How do these responsibilities differ from those of a network administrator?

Q.3 Attempt any Two **12**

- a) What are the steps involved in installing Linux in a multiboot environment, and what considerations should be taken into account for hard disk partitioning and swap space allocation?
- b) What are some common commands for file manipulation in Linux, including piping and redirection, and how do they work?
- c) What is backup? How can backup be used to protect system data in Linux? Discuss different backup options and their pros and cons.

Section – II

Q.4 Attempt any Four **16**

- a) What is a DNS server? How can DNS servers be configured in Linux? Discuss different DNS server software options and their key features.
- b) What are the steps involved in obtaining and installing Git on your system? Are there any specific requirements or considerations?
- c) What are control structures in Bash shell scripts? How can if statements, for loops, and while loops be used to control program flow?
- d) What is script control in Bash shell programming? Explain how signals can be used to interrupt or terminate Bash shell scripts.
- e) What is the significance of checking the status of a repository using the "git status" command? How does it help in managing changes?

Q.5 Attempt any Two

- a) How can Bash shell scripts be used to interact with the web? Discuss different options for downloading web pages, parsing data from web pages, and working with URLs in Bash shell scripts.
- b) What are the different ways to remove files in Git? How does "git reset" remove staged files, and how does "git rm" remove committed files?
- c) What is the process of checking out a branch in Git? How does it switch the working directory to a different branch and what are the implications of this action?

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/MI -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is NOT a step in the machine learning workflow?

a) Data preprocessing	b) Model evaluation
c) Model deployment	d) Data visualization
- 2) What is Unsupervised learning?
 - a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data
- 3) What is the purpose of a confusion matrix in classification?
 - a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 4) Which of the following evaluation metrics is typically used for classification problems?

a) Mean Absolute Error (MAE)	b) Root Mean Squared Error (RMSE)
c) Accuracy	d) R-squared (R^2)
- 5) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
 - a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations
- 6) In K-means clustering, what does "K" represent?

a) The number of features	b) The number of clusters
c) The number of data points	d) The number of iterations
- 7) The principle underlying the Market Basket Analysis is known as _____.

a) Association rule	b) Bisecting rule
c) k-means	d) Bayes' theorem

- 8) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:
- a) Image Detection
 - b) Medical Diagnosis
 - c) Learning Language
 - d) Stock Analysis
- 9) Single-layer perceptron is able to deal with _____.
- a) linearly separable data
 - b) non-linearly separable data
 - c) linearly inseparable data
 - d) none of the above
- 10) Which of the following is NOT a common type of machine learning?
- a) Supervised Learning
 - b) Unsupervised Learning
 - c) Reinforcement Learning
 - d) Deterministic Learning
- 11) What is the primary difference between binary and multiclass classification?
- a) Binary has two classes, while multiclass has more than two classes
 - b) Binary classification is unsupervised, while multiclass is supervised
 - c) Binary classification uses regression techniques
 - d) Multiclass classification uses clustering algorithms
- 12) Which of the following is an example of a regression problem?
- a) Predicting whether an email is spam or not
 - b) Identifying the objects in an image
 - c) Predicting the price of a house based on its features
 - d) Grouping customers into different segments
- 13) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?
- a) 1
 - b) 2
 - c) 4
 - d) 8
- 14) What is a feedforward neural network?
- a) A network where information travels in both directions
 - b) A network with multiple hidden layers
 - c) A network where information flows in one direction, from input to output
 - d) A network with recurrent connections

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/MI -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy

Precision

Recall

F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

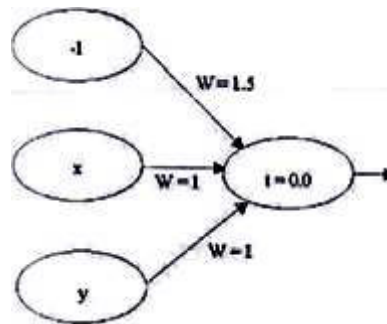
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/ML -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:

a) Image Detection	b) Medical Diagnosis
c) Learning Language	d) Stock Analysis
- 2) Single-layer perceptron is able to deal with _____.

a) linearly separable data	b) non-linearly separable data
c) linearly inseparable data	d) none of the above
- 3) Which of the following is NOT a common type of machine learning?

a) Supervised Learning	b) Unsupervised Learning
c) Reinforcement Learning	d) Deterministic Learning
- 4) What is the primary difference between binary and multiclass classification?

a) Binary has two classes, while multiclass has more than two classes	b) Binary classification is unsupervised, while multiclass is supervised
c) Binary classification uses regression techniques	d) Multiclass classification uses clustering algorithms
- 5) Which of the following is an example of a regression problem?

a) Predicting whether an email is spam or not	b) Identifying the objects in an image
c) Predicting the price of a house based on its features	d) Grouping customers into different segments
- 6) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?

a) 1	b) 2
c) 4	d) 8
- 7) What is a feedforward neural network?

a) A network where information travels in both directions	b) A network with multiple hidden layers
c) A network where information flows in one direction, from input to output	d) A network with recurrent connections

- 8) Which of the following is NOT a step in the machine learning workflow?
- a) Data preprocessing
 - b) Model evaluation
 - c) Model deployment
 - d) Data visualization
- 9) What is Unsupervised learning?
- a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data
- 10) What is the purpose of a confusion matrix in classification?
- a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 11) Which of the following evaluation metrics is typically used for classification problems?
- a) Mean Absolute Error (MAE)
 - b) Root Mean Squared Error (RMSE)
 - c) Accuracy
 - d) R-squared (R^2)
- 12) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
- a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations
- 13) In K-means clustering, what does "K" represent?
- a) The number of features
 - b) The number of clusters
 - c) The number of data points
 - d) The number of iterations
- 14) The principle underlying the Market Basket Analysis is known as _____.
- a) Association rule
 - b) Bisecting rule
 - c) k-means
 - d) Bayes' theorem

Seat No.	
----------	--

Set Q

**T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/MI -Machine Learning (BTN06612)**

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
Neighbor 1: Class A
Neighbor 2: Class B
Neighbor 3: Class A
Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
Milk =>Bread
{Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
Calculate the following statistical parameters:
Mean (Average):9.2
Median:9
Range: 5
Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy

Precision

Recall

F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

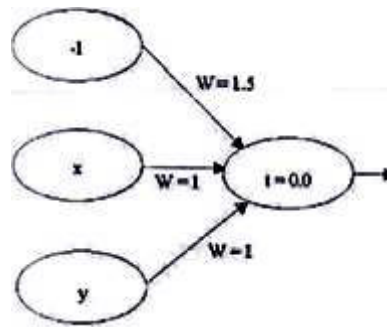
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/ML -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the primary difference between binary and multiclass classification?
 - a) Binary has two classes, while multiclass has more than two classes
 - b) Binary classification is unsupervised, while multiclass is supervised
 - c) Binary classification uses regression techniques
 - d) Multiclass classification uses clustering algorithms

- 2) Which of the following is an example of a regression problem?
 - a) Predicting whether an email is spam or not
 - b) Identifying the objects in an image
 - c) Predicting the price of a house based on its features
 - d) Grouping customers into different segments

- 3) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?

a) 1	b) 2
c) 4	d) 8

- 4) What is a feedforward neural network?
 - a) A network where information travels in both directions
 - b) A network with multiple hidden layers
 - c) A network where information flows in one direction, from input to output
 - d) A network with recurrent connections

- 5) Which of the following is NOT a step in the machine learning workflow?

a) Data preprocessing	b) Model evaluation
c) Model deployment	d) Data visualization

- 6) What is Unsupervised learning?
 - a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data

- 7) What is the purpose of a confusion matrix in classification?
- a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 8) Which of the following evaluation metrics is typically used for classification problems?
- a) Mean Absolute Error (MAE)
 - b) Root Mean Squared Error (RMSE)
 - c) Accuracy
 - d) R-squared (R^2)
- 9) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
- a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations
- 10) In K-means clustering, what does "K" represent?
- a) The number of features
 - b) The number of clusters
 - c) The number of data points
 - d) The number of iterations
- 11) The principle underlying the Market Basket Analysis is known as _____.
- a) Association rule
 - b) Bisecting rule
 - c) k-means
 - d) Bayes' theorem
- 12) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:
- a) Image Detection
 - b) Medical Diagnosis
 - c) Learning Language
 - d) Stock Analysis
- 13) Single-layer perceptron is able to deal with _____.
- a) linearly separable data
 - b) non-linearly separable data
 - c) linearly inseparable data
 - d) none of the above
- 14) Which of the following is NOT a common type of machine learning?
- a) Supervised Learning
 - b) Unsupervised Learning
 - c) Reinforcement Learning
 - d) Deterministic Learning

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/MI -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy
Precision
Recall
F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation. Explain briefly what cross-validation is and why it is important in machine learning.
You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.
What are the benefits of using k-fold cross-validation over a simple train-test split?
- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

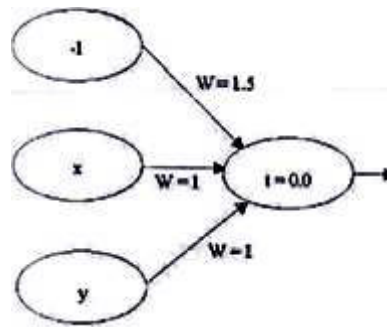
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
 - Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
 - i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/ML -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In K-means clustering, what does "K" represent?
 - a) The number of features
 - b) The number of clusters
 - c) The number of data points
 - d) The number of iterations
- 2) The principle underlying the Market Basket Analysis is known as _____.
 - a) Association rule
 - b) Bisecting rule
 - c) k-means
 - d) Bayes' theorem
- 3) Early detection of mental disorders using machine learning and data science: diagnosing clinical depression, bipolar disorder, anxiety are applications of ML in:
 - a) Image Detection
 - b) Medical Diagnosis
 - c) Learning Language
 - d) Stock Analysis
- 4) Single-layer perceptron is able to deal with _____.
 - a) linearly separable data
 - b) non-linearly separable data
 - c) linearly inseparable data
 - d) none of the above
- 5) Which of the following is NOT a common type of machine learning?
 - a) Supervised Learning
 - b) Unsupervised Learning
 - c) Reinforcement Learning
 - d) Deterministic Learning
- 6) What is the primary difference between binary and multiclass classification?
 - a) Binary has two classes, while multiclass has more than two classes
 - b) Binary classification is unsupervised, while multiclass is supervised
 - c) Binary classification uses regression techniques
 - d) Multiclass classification uses clustering algorithms
- 7) Which of the following is an example of a regression problem?
 - a) Predicting whether an email is spam or not
 - b) Identifying the objects in an image
 - c) Predicting the price of a house based on its features
 - d) Grouping customers into different segments
- 8) Which of the following will be Euclidean distance between the two data points A(4,3) and B(2,3)?
 - a) 1
 - b) 2
 - c) 4
 - d) 8

- 9) What is a feedforward neural network?
- a) A network where information travels in both directions
 - b) A network with multiple hidden layers
 - c) A network where information flows in one direction, from input to output
 - d) A network with recurrent connections
- 10) Which of the following is NOT a step in the machine learning workflow?
- a) Data preprocessing
 - b) Model evaluation
 - c) Model deployment
 - d) Data visualization
- 11) What is Unsupervised learning?
- a) Learning with a strict teacher
 - b) Learning without any guidance
 - c) Learning from labeled data
 - d) Learning from unlabeled data
- 12) What is the purpose of a confusion matrix in classification?
- a) To confuse the model during training
 - b) To visualize the dataset
 - c) To evaluate the performance of a classification model
 - d) To create additional features
- 13) Which of the following evaluation metrics is typically used for classification problems?
- a) Mean Absolute Error (MAE)
 - b) Root Mean Squared Error (RMSE)
 - c) Accuracy
 - d) R-squared (R^2)
- 14) In k-Nearest Neighbors (KNN) classification, what does "k" represent?
- a) The number of features
 - b) The number of classes
 - c) The number of neighbors to consider
 - d) The number of iterations

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI/MI -Machine Learning (BTN06612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four.

16

- a) What are the characteristics that distinguish machine learning tasks from traditional programming tasks?
- b) What is significance of K in KNN Classifier? You are using the K-NN algorithm to classify a new data point in a dataset with 'k' set to 3. The three nearest neighbors to the new data point are as follows, along with their class labels:
 Neighbor 1: Class A
 Neighbor 2: Class B
 Neighbor 3: Class A
 Calculate the predicted class for the new data point using majority voting.
- c) Define Confidence, Support parameters and calculate the same for following associations
 Milk =>Bread
 {Bread, Cheese}=>Juice

Transaction ID	Items Purchased
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk
5	Cheese, Juice, Milk

- d) What are steps in developing Machine Learning Model?
- e) You have the following dataset representing the number of hours (in hours) that a group of students spent studying for an exam:8,10,12,7,9
 Calculate the following statistical parameters:
 Mean (Average):9.2
 Median:9
 Range: 5
 Standard Deviation 1.72
- f) What is the difference between feature construction and feature extraction, providing examples of scenarios where each would be more advantageous.

Q.3 Solve any two.

- a) Suppose you are working on a medical diagnosis task, where you have developed a binary classification model to detect the presence or absence of a certain disease based on patient data. The disease is rare, affecting only 2% of the population. You have evaluated your model and obtained the following confusion matrix:

		Actual	
		Positive	Negative
Predicted	Positive	80	10
	Negative	5	905

Calculate the following performance metrics for your model:

Accuracy

Precision

Recall

F1-score

Provide interpretations for each metric's value in the context of this medical diagnosis task

- b) In a machine learning project, the developed ML model predicts the price of houses based on various features such as square footage, number of bedrooms, and neighborhood. Your dataset contains 500 samples, and you want to evaluate your model's performance using cross-validation.

Explain briefly what cross-validation is and why it is important in machine learning.

You decide to use k-fold cross-validation with $k = 5$. Describe the process of performing k-fold cross-validation on your dataset, including the steps involved and how the dataset is divided.

What are the benefits of using k-fold cross-validation over a simple train-test split?

- c) With the help of suitable block diagram discuss how Reinforcement learning can be used for developing ML Model.

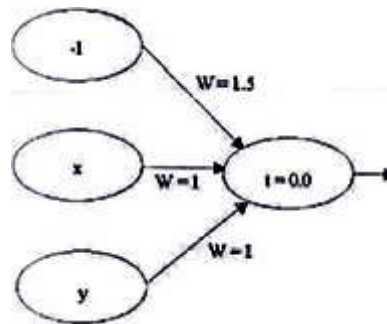
Section – II**Q.4 Solve any four.**

16

- a) Draw the simple structure of McCulloch Pitts Neuron Model (MP Neuron)?
- b) Discuss the steps followed in Backpropagation algorithm.
- c) What are different activation functions in ANN?
- d) Discuss the characteristics of following clustering techniques.
- Partitioning methods
 - Hierarchical methods
 - Density-based methods
- e) Discuss the steps followed in K means clustering. How to decide value of K?
- f) Compare between Supervised and Unsupervised machine learning with reference to following points
- i) Definition
 - ii) Training Data
 - iii) Evaluation
 - iv) Examples

Q.5 Solve any two

- a) Describe the key features and functionalities of an effective email spam filter. Include a discussion on how machine learning algorithms can be employed to enhance the accuracy of spam detection.
- b) Why AND, OR Gate problems are called Linearly separable and XOR is called as linearly inseparable problem for its Neural Network implementation? Which logic gate is represented by the following Neural Network Design.



- c) Discuss apriori algorithm and explain how it can be used for association rule learning.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) What is the first step to create a new AWS account?
 - a) Choose a billing plan
 - b) Provide payment information
 - c) Verify email address
 - d) Set up multi-factor authentication
- 2) Which AWS account type has full administrative access and control over all AWS resources?
 - a) Root user
 - b) Non-root user
 - c) IAM user
 - d) Service account
- 3) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
 - a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility
- 4) Which component of IAM defines what actions are allowed or denied on AWS resources?
 - a) Users
 - b) Roles
 - c) Policies
 - d) Groups
- 5) Which of the following is NOT an IAM best practice in AWS?
 - a) Regularly reviewing and rotating access keys
 - b) Using AWS root user for everyday tasks
 - c) Granting least privilege to IAM users
 - d) Enforcing strong password policies
- 6) What is ClassicLink in AWS VPC?
 - a) A service for linking multiple VPCs together
 - b) A legacy networking feature for EC2-Classic instances
 - c) A load balancing solution for VPC instances
 - d) A network traffic monitoring tool for VPCs
- 7) Which of the following is a VPC best practice in AWS?
 - a) Allowing unrestricted inbound and outbound traffic
 - b) Using default VPC settings without modification
 - c) Assigning public IP addresses to all VPC instances
 - d) Implementing network access control through security groups

- 8) What is an EC2 best practice for improving security?
- a) Disabling network encryption
 - b) Sharing key pairs between multiple instances
 - c) Assigning public IP addresses to all instances
 - d) Restricting inbound traffic using security groups
- 9) Which of the following is a benefit of using EC2 Auto Scaling?
- a) Ensuring high availability and fault tolerance
 - b) Reducing data transfer costs
 - c) Enabling direct database access
 - d) Streamlining instance purchasing process
- 10) How can you optimize costs when using EC2 instances?
- a) Running instances continuously without stopping
 - b) Choosing the largest instance size available
 - c) Using spot instances for non-critical workloads
 - d) Keeping all instances in the same availability zone
- 11) Which AWS service provides automated response actions based on Cloud Watch alarms?
- a) AWS Lambda
 - b) AWS Glue
 - c) AWS Step Functions
 - d) AWS Batch
- 12) What is the purpose of Cloud Watch logs in AWS?
- a) Storing and monitoring system, application, and custom log files
 - b) Generating real-time notifications for critical events
 - c) Collecting and analyzing network traffic data
 - d) Managing access control for AWS resources
- 13) What are the storage classes available in Amazon S3?
- a) Standard, Archive, and Cold
 - b) Standard, Glacier, and EBS
 - c) Standard, Infrequent Access, and Deep Archive
 - d) Standard, Intelligent-Tiering, and Glacier Deep Archive
- 14) How does Amazon S3 Glacier compare to other S3 storage classes?
- a) Glacier offers immediate data access with high availability
 - b) Glacier has the lowest storage cost among all storage classes
 - c) Glacier is designed for frequently accessed data
 - d) Glacier has the shortest data retrieval time

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- Explain the basic concepts of AWS and its key services.
- What is virtualization and how does it work in AWS? How is it related to elasticity and scalability?
- What is the AWS root user? Why is it important to understand the root user account?
- What is Virtual Private Cloud (VPC)? How is VPC used in AWS to create isolated virtual networks?

Q.3 Answer the following question. 16

- Explain the key components of AWS VPC, including subnets, IP addressing, and routing tables. Describe how these components work together to create a custom network topology within VPC.
- What are the different networking components of VPC? Explain the role of VPC endpoints, NAT gateways, and VPN connections in VPC networking.

Section – II

Q.4 Attempt any Three. 12

- What is an Amazon Machine Image (AMI) in the context of EC2?
- What is Elastic Block Store (EBS) and why is it important in EC2?
- How can CloudWatch alarms be used to trigger actions based on certain threshold conditions?
- What are objects in S3 and what are the key components of an object?

Q.5 Answer the following question. 16

- What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
- How does lifecycle management in S3 allow for the automatic transition of objects between different storage classes or deletion based on predefined rules?

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) What is an EC2 best practice for improving security?
 - a) Disabling network encryption
 - b) Sharing key pairs between multiple instances
 - c) Assigning public IP addresses to all instances
 - d) Restricting inbound traffic using security groups
- 2) Which of the following is a benefit of using EC2 Auto Scaling?
 - a) Ensuring high availability and fault tolerance
 - b) Reducing data transfer costs
 - c) Enabling direct database access
 - d) Streamlining instance purchasing process
- 3) How can you optimize costs when using EC2 instances?
 - a) Running instances continuously without stopping
 - b) Choosing the largest instance size available
 - c) Using spot instances for non-critical workloads
 - d) Keeping all instances in the same availability zone
- 4) Which AWS service provides automated response actions based on Cloud Watch alarms?

a) AWS Lambda	b) AWS Glue
c) AWS Step Functions	d) AWS Batch
- 5) What is the purpose of Cloud Watch logs in AWS?
 - a) Storing and monitoring system, application, and custom log files
 - b) Generating real-time notifications for critical events
 - c) Collecting and analyzing network traffic data
 - d) Managing access control for AWS resources
- 6) What are the storage classes available in Amazon S3?
 - a) Standard, Archive, and Cold
 - b) Standard, Glacier, and EBS
 - c) Standard, Infrequent Access, and Deep Archive
 - d) Standard, Intelligent-Tiering, and Glacier Deep Archive

- 7) How does Amazon S3 Glacier compare to other S3 storage classes?
- a) Glacier offers immediate data access with high availability
 - b) Glacier has the lowest storage cost among all storage classes
 - c) Glacier is designed for frequently accessed data
 - d) Glacier has the shortest data retrieval time
- 8) What is the first step to create a new AWS account?
- a) Choose a billing plan
 - b) Provide payment information
 - c) Verify email address
 - d) Set up multi-factor authentication
- 9) Which AWS account type has full administrative access and control over all AWS resources?
- a) Root user
 - b) Non-root user
 - c) IAM user
 - d) Service account
- 10) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
- a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility
- 11) Which component of IAM defines what actions are allowed or denied on AWS resources?
- a) Users
 - b) Roles
 - c) Policies
 - d) Groups
- 12) Which of the following is NOT an IAM best practice in AWS?
- a) Regularly reviewing and rotating access keys
 - b) Using AWS root user for everyday tasks
 - c) Granting least privilege to IAM users
 - d) Enforcing strong password policies
- 13) What is ClassicLink in AWS VPC?
- a) A service for linking multiple VPCs together
 - b) A legacy networking feature for EC2-Classical instances
 - c) A load balancing solution for VPC instances
 - d) A network traffic monitoring tool for VPCs
- 14) Which of the following is a VPC best practice in AWS?
- a) Allowing unrestricted inbound and outbound traffic
 - b) Using default VPC settings without modification
 - c) Assigning public IP addresses to all VPC instances
 - d) Implementing network access control through security groups

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- Explain the basic concepts of AWS and its key services.
- What is virtualization and how does it work in AWS? How is it related to elasticity and scalability?
- What is the AWS root user? Why is it important to understand the root user account?
- What is Virtual Private Cloud (VPC)? How is VPC used in AWS to create isolated virtual networks?

Q.3 Answer the following question. 16

- Explain the key components of AWS VPC, including subnets, IP addressing, and routing tables. Describe how these components work together to create a custom network topology within VPC.
- What are the different networking components of VPC? Explain the role of VPC endpoints, NAT gateways, and VPN connections in VPC networking.

Section – II

Q.4 Attempt any Three. 12

- What is an Amazon Machine Image (AMI) in the context of EC2?
- What is Elastic Block Store (EBS) and why is it important in EC2?
- How can CloudWatch alarms be used to trigger actions based on certain threshold conditions?
- What are objects in S3 and what are the key components of an object?

Q.5 Answer the following question. 16

- What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
- How does lifecycle management in S3 allow for the automatic transition of objects between different storage classes or deletion based on predefined rules?

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.

14

- 1) Which AWS service provides automated response actions based on Cloud Watch alarms?
 - a) AWS Lambda
 - b) AWS Glue
 - c) AWS Step Functions
 - d) AWS Batch
- 2) What is the purpose of Cloud Watch logs in AWS?
 - a) Storing and monitoring system, application, and custom log files
 - b) Generating real-time notifications for critical events
 - c) Collecting and analyzing network traffic data
 - d) Managing access control for AWS resources
- 3) What are the storage classes available in Amazon S3?
 - a) Standard, Archive, and Cold
 - b) Standard, Glacier, and EBS
 - c) Standard, Infrequent Access, and Deep Archive
 - d) Standard, Intelligent-Tiering, and Glacier Deep Archive
- 4) How does Amazon S3 Glacier compare to other S3 storage classes?
 - a) Glacier offers immediate data access with high availability
 - b) Glacier has the lowest storage cost among all storage classes
 - c) Glacier is designed for frequently accessed data
 - d) Glacier has the shortest data retrieval time
- 5) What is the first step to create a new AWS account?
 - a) Choose a billing plan
 - b) Provide payment information
 - c) Verify email address
 - d) Set up multi-factor authentication
- 6) Which AWS account type has full administrative access and control over all AWS resources?
 - a) Root user
 - b) Non-root user
 - c) IAM user
 - d) Service account
- 7) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
 - a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility

- 8) Which component of IAM defines what actions are allowed or denied on AWS resources?
- a) Users
 - b) Roles
 - c) Policies
 - d) Groups
- 9) Which of the following is NOT an IAM best practice in AWS?
- a) Regularly reviewing and rotating access keys
 - b) Using AWS root user for everyday tasks
 - c) Granting least privilege to IAM users
 - d) Enforcing strong password policies
- 10) What is ClassicLink in AWS VPC?
- a) A service for linking multiple VPCs together
 - b) A legacy networking feature for EC2-Classic instances
 - c) A load balancing solution for VPC instances
 - d) A network traffic monitoring tool for VPCs
- 11) Which of the following is a VPC best practice in AWS?
- a) Allowing unrestricted inbound and outbound traffic
 - b) Using default VPC settings without modification
 - c) Assigning public IP addresses to all VPC instances
 - d) Implementing network access control through security groups
- 12) What is an EC2 best practice for improving security?
- a) Disabling network encryption
 - b) Sharing key pairs between multiple instances
 - c) Assigning public IP addresses to all instances
 - d) Restricting inbound traffic using security groups
- 13) Which of the following is a benefit of using EC2 Auto Scaling?
- a) Ensuring high availability and fault tolerance
 - b) Reducing data transfer costs
 - c) Enabling direct database access
 - d) Streamlining instance purchasing process
- 14) How can you optimize costs when using EC2 instances?
- a) Running instances continuously without stopping
 - b) Choosing the largest instance size available
 - c) Using spot instances for non-critical workloads
 - d) Keeping all instances in the same availability zone

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. **12**

- a) Explain the basic concepts of AWS and its key services.
- b) What is virtualization and how does it work in AWS? How is it related to elasticity and scalability?
- c) What is the AWS root user? Why is it important to understand the root user account?
- d) What is Virtual Private Cloud (VPC)? How is VPC used in AWS to create isolated virtual networks?

Q.3 Answer the following question. **16**

- a) Explain the key components of AWS VPC, including subnets, IP addressing, and routing tables. Describe how these components work together to create a custom network topology within VPC.
- b) What are the different networking components of VPC? Explain the role of VPC endpoints, NAT gateways, and VPN connections in VPC networking.

Section – II

Q.4 Attempt any Three. **12**

- a) What is an Amazon Machine Image (AMI) in the context of EC2?
- b) What is Elastic Block Store (EBS) and why is it important in EC2?
- c) How can CloudWatch alarms be used to trigger actions based on certain threshold conditions?
- d) What are objects in S3 and what are the key components of an object?

Q.5 Answer the following question. **16**

- a) What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
- b) How does lifecycle management in S3 allow for the automatic transition of objects between different storage classes or deletion based on predefined rules?

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) What is ClassicLink in AWS VPC?
 - a) A service for linking multiple VPCs together
 - b) A legacy networking feature for EC2-Classical instances
 - c) A load balancing solution for VPC instances
 - d) A network traffic monitoring tool for VPCs
- 2) Which of the following is a VPC best practice in AWS?
 - a) Allowing unrestricted inbound and outbound traffic
 - b) Using default VPC settings without modification
 - c) Assigning public IP addresses to all VPC instances
 - d) Implementing network access control through security groups
- 3) What is an EC2 best practice for improving security?
 - a) Disabling network encryption
 - b) Sharing key pairs between multiple instances
 - c) Assigning public IP addresses to all instances
 - d) Restricting inbound traffic using security groups
- 4) Which of the following is a benefit of using EC2 Auto Scaling?
 - a) Ensuring high availability and fault tolerance
 - b) Reducing data transfer costs
 - c) Enabling direct database access
 - d) Streamlining instance purchasing process
- 5) How can you optimize costs when using EC2 instances?
 - a) Running instances continuously without stopping
 - b) Choosing the largest instance size available
 - c) Using spot instances for non-critical workloads
 - d) Keeping all instances in the same availability zone
- 6) Which AWS service provides automated response actions based on Cloud Watch alarms?

a) AWS Lambda	b) AWS Glue
c) AWS Step Functions	d) AWS Batch

- 7) What is the purpose of Cloud Watch logs in AWS?
- a) Storing and monitoring system, application, and custom log files
 - b) Generating real-time notifications for critical events
 - c) Collecting and analyzing network traffic data
 - d) Managing access control for AWS resources
- 8) What are the storage classes available in Amazon S3?
- a) Standard, Archive, and Cold
 - b) Standard, Glacier, and EBS
 - c) Standard, Infrequent Access, and Deep Archive
 - d) Standard, Intelligent-Tiering, and Glacier Deep Archive
- 9) How does Amazon S3 Glacier compare to other S3 storage classes?
- a) Glacier offers immediate data access with high availability
 - b) Glacier has the lowest storage cost among all storage classes
 - c) Glacier is designed for frequently accessed data
 - d) Glacier has the shortest data retrieval time
- 10) What is the first step to create a new AWS account?
- a) Choose a billing plan
 - b) Provide payment information
 - c) Verify email address
 - d) Set up multi-factor authentication
- 11) Which AWS account type has full administrative access and control over all AWS resources?
- a) Root user
 - b) Non-root user
 - c) IAM user
 - d) Service account
- 12) Which term is used to describe the practice of running multiple virtual machines on a single physical server?
- a) Elasticity
 - b) Scalability
 - c) Virtualization
 - d) Agility
- 13) Which component of IAM defines what actions are allowed or denied on AWS resources?
- a) Users
 - b) Roles
 - c) Policies
 - d) Groups
- 14) Which of the following is NOT an IAM best practice in AWS?
- a) Regularly reviewing and rotating access keys
 - b) Using AWS root user for everyday tasks
 - c) Granting least privilege to IAM users
 - d) Enforcing strong password policies

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
IoT Cloud Platform (BTN06614)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Three. 12

- Explain the basic concepts of AWS and its key services.
- What is virtualization and how does it work in AWS? How is it related to elasticity and scalability?
- What is the AWS root user? Why is it important to understand the root user account?
- What is Virtual Private Cloud (VPC)? How is VPC used in AWS to create isolated virtual networks?

Q.3 Answer the following question. 16

- Explain the key components of AWS VPC, including subnets, IP addressing, and routing tables. Describe how these components work together to create a custom network topology within VPC.
- What are the different networking components of VPC? Explain the role of VPC endpoints, NAT gateways, and VPN connections in VPC networking.

Section – II

Q.4 Attempt any Three. 12

- What is an Amazon Machine Image (AMI) in the context of EC2?
- What is Elastic Block Store (EBS) and why is it important in EC2?
- How can CloudWatch alarms be used to trigger actions based on certain threshold conditions?
- What are objects in S3 and what are the key components of an object?

Q.5 Answer the following question. 16

- What are the different storage classes available in S3 and how do they differ in terms of durability, availability, and cost?
- How does lifecycle management in S3 allow for the automatic transition of objects between different storage classes or deletion based on predefined rules?

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) India's first passenger train from Bori Bunder (Mumbai) to Thane was run on which of the following gauge?

a) Meter gauge	b) Standard gauge
c) Broad gauge	d) Narrow gauge
- 2) Which of the following rail has been standardized for adoption on the Indian railways?

a) Combination of BH and DH	b) Flat footed
c) Double headed	d) Bull headed
- 3) Why the railway track is made resilient and elastic?

a) Easy fixing	b) It can be adjusted easily
c) So that it absorbs shocks	d) To make it economic
- 4) Which of the following is also known as another name of inner rail?

a) Gradient rail	b) Cant rail
c) Fixed rail	d) Slope rail
- 5) Which of the following is the most important strategic reason for the construction of a new railway line?

a) For creating jobs	b) Because of absence of a railway line
c) To increase tourists	d) To make movement of defense forces easier in case of emergency
- 6) Which of the following is not a cotter used on Indian Railways?

a) Empty end split cotter	b) Solid end split cotter
c) Centre split cotter	d) Side split cotter
- 7) Which among the following is used between rails and sleepers to absorb shocks, resist lateral movement of rails and provide electrical insulation between rails?

a) Spring steel clips	b) CI anti creep bearing plate
c) Rubber pads	d) Spring steel loose jaw

- 8) What is an elastic fastening called which is easy to fit in but difficult to remove?
- a) Pilfer proof elastic fastening b) Proof elastic fastening
c) Circlip proof elastic fastening d) Pandrol clip elastic fastening
- 9) What is Control System?
- a) Control system is a system in which the output is controlled by varying the input
b) Control system is a device that will not manage or regulate the behaviour of other devices using control loops
c) Control system is a feedback system that can be both positive and negative
d) Control System is a system in which the input is controlled by varying the output
- 10) Which of the following is not the feature of a modern control system?
- a) Correct power level b) No oscillation
c) Quick response d) Accuracy
- 11) Which of the following element is not used in an automatic control system?
- a) Final control element b) Sensor
c) Oscillator d) Error detector
- 12) What should be the nature of bandwidth for a good control system?
- a) Small b) Medium
c) Large d) All of the mentioned
- 13) In a stable control system backlash can cause which of the following?
- a) Overdamping
b) Low-level oscillations
c) Underdamping
d) Poor stability at reduced values of open loop gain
- 14) The input signals to control systems are not known fully ahead of time, the characteristics of control system which suddenly strain a control system are:
- a) Constant velocity and acceleration
b) Sudden shock
c) Sudden change
d) All of the mentioned

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is Public Address System? Explain.
 - b) What is typical arrangement of PRS Terminals?
 - c) Write a short note on Unreserved Ticketing System (UTS).
 - d) What is mean by freight operations? Explain.
 - e) Which Network topologies used in FOIS? Give Details.
- Q.3 Attempt any Two. 12**
- a) Explain RMS and TMS.
 - b) Give Application of Information Technology in Railways.
 - c) Explain classification of railway bridges.

Section – II

- Q.4 Attempt any Four. 16**
- a) Write a short note on Auxiliary Warning System.
 - b) Explain different networking devices.
 - c) Give Any four rules of block diagram reduction.
 - d) Give the transfer function of a closed-loop system with proper equation.
 - e) Write note on TELNET (Terminal Network).
- Q.5 Attempt any Two. 12**
- a) What is mean by data logger? Explain.
 - b) What is mean by control system? Give its types.
 - c) Explain Robotic control system.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) What is an elastic fastening called which is easy to fit in but difficult to remove?
 - a) Pilfer proof elastic fastening
 - b) Proof elastic fastening
 - c) Circlip proof elastic fastening
 - d) Pandrol clip elastic fastening
- 2) What is Control System?
 - a) Control system is a system in which the output is controlled by varying the input
 - b) Control system is a device that will not manage or regulate the behaviour of other devices using control loops
 - c) Control system is a feedback system that can be both positive and negative
 - d) Control System is a system in which the input is controlled by varying the output
- 3) Which of the following is not the feature of a modern control system?
 - a) Correct power level
 - b) No oscillation
 - c) Quick response
 - d) Accuracy
- 4) Which of the following element is not used in an automatic control system?
 - a) Final control element
 - b) Sensor
 - c) Oscillator
 - d) Error detector
- 5) What should be the nature of bandwidth for a good control system?
 - a) Small
 - b) Medium
 - c) Large
 - d) All of the mentioned
- 6) In a stable control system backlash can cause which of the following?
 - a) Overdamping
 - b) Low-level oscillations
 - c) Underdamping
 - d) Poor stability at reduced values of open loop gain

- 7) The input signals to control systems are not known fully ahead of time, the characteristics of control system which suddenly strain a control system are:
- a) Constant velocity and acceleration
 - b) Sudden shock
 - c) Sudden change
 - d) All of the mentioned
- 8) India's first passenger train from Bori Bunder (Mumbai) to Thane was run on which of the following gauge?
- a) Meter gauge
 - b) Standard gauge
 - c) Broad gauge
 - d) Narrow gauge
- 9) Which of the following rail has been standardized for adoption on the Indian railways?
- a) Combination of BH and DH
 - b) Flat footed
 - c) Double headed
 - d) Bull headed
- 10) Why the railway track is made resilient and elastic?
- a) Easy fixing
 - b) It can be adjusted easily
 - c) So that it absorbs shocks
 - d) To make it economic
- 11) Which of the following is also known as another name of inner rail?
- a) Gradient rail
 - b) Cant rail
 - c) Fixed rail
 - d) Slope rail
- 12) Which of the following is the most important strategic reason for the construction of a new railway line?
- a) For creating jobs
 - b) Because of absence of a railway line
 - c) To increase tourists
 - d) To make movement of defense forces easier in case of emergency
- 13) Which of the following is not a cotter used on Indian Railways?
- a) Empty end split cotter
 - b) Solid end split cotter
 - c) Centre split cotter
 - d) Side split cotter
- 14) Which among the following is used between rails and sleepers to absorb shocks, resist lateral movement of rails and provide electrical insulation between rails?
- a) Spring steel clips
 - b) CI anti creep bearing plate
 - c) Rubber pads
 - d) Spring steel loose jaw

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is Public Address System? Explain.
 - b) What is typical arrangement of PRS Terminals?
 - c) Write a short note on Unreserved Ticketing System (UTS).
 - d) What is mean by freight operations? Explain.
 - e) Which Network topologies used in FOIS? Give Details.
- Q.3 Attempt any Two. 12**
- a) Explain RMS and TMS.
 - b) Give Application of Information Technology in Railways.
 - c) Explain classification of railway bridges.

Section – II

- Q.4 Attempt any Four. 16**
- a) Write a short note on Auxiliary Warning System.
 - b) Explain different networking devices.
 - c) Give Any four rules of block diagram reduction.
 - d) Give the transfer function of a closed-loop system with proper equation.
 - e) Write note on TELNET (Terminal Network).
- Q.5 Attempt any Two. 12**
- a) What is mean by data logger? Explain.
 - b) What is mean by control system? Give its types.
 - c) Explain Robotic control system.

Seat No.	
----------	--

Set	R
-----	---

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following element is not used in an automatic control system?

a) Final control element	b) Sensor
c) Oscillator	d) Error detector
- 2) What should be the nature of bandwidth for a good control system?

a) Small	b) Medium
c) Large	d) All of the mentioned
- 3) In a stable control system backlash can cause which of the following?

a) Overdamping	b) Low-level oscillations
c) Underdamping	d) Poor stability at reduced values of open loop gain
- 4) The input signals to control systems are not known fully ahead of time, the characteristics of control system which suddenly strain a control system are:

a) Constant velocity and acceleration	b) Sudden shock
c) Sudden change	d) All of the mentioned
- 5) India's first passenger train from Bori Bunder (Mumbai) to Thane was run on which of the following gauge?

a) Meter gauge	b) Standard gauge
c) Broad gauge	d) Narrow gauge
- 6) Which of the following rail has been standardized for adoption on the Indian railways?

a) Combination of BH and DH	b) Flat footed
c) Double headed	d) Bull headed
- 7) Why the railway track is made resilient and elastic?

a) Easy fixing	b) It can be adjusted easily
c) So that it absorbs shocks	d) To make it economic

Seat No.	
-----------------	--

Set	R
------------	----------

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four.** **16**
- a) What is Public Address System? Explain.
 - b) What is typical arrangement of PRS Terminals?
 - c) Write a short note on Unreserved Ticketing System (UTS).
 - d) What is mean by freight operations? Explain.
 - e) Which Network topologies used in FOIS? Give Details.
- Q.3 Attempt any Two.** **12**
- a) Explain RMS and TMS.
 - b) Give Application of Information Technology in Railways.
 - c) Explain classification of railway bridges.

Section – II

- Q.4 Attempt any Four.** **16**
- a) Write a short note on Auxiliary Warning System.
 - b) Explain different networking devices.
 - c) Give Any four rules of block diagram reduction.
 - d) Give the transfer function of a closed-loop system with proper equation.
 - e) Write note on TELNET (Terminal Network).
- Q.5 Attempt any Two.** **12**
- a) What is mean by data logger? Explain.
 - b) What is mean by control system? Give its types.
 - c) Explain Robotic control system.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following is not a cotter used on Indian Railways?

a) Empty end split cotter	b) Solid end split cotter
c) Centre split cotter	d) Side split cotter
- 2) Which among the following is used between rails and sleepers to absorb shocks, resist lateral movement of rails and provide electrical insulation between rails?

a) Spring steel clips	b) CI anti creep bearing plate
c) Rubber pads	d) Spring steel loose jaw
- 3) What is an elastic fastening called which is easy to fit in but difficult to remove?

a) Pilfer proof elastic fastening	b) Proof elastic fastening
c) Circlip proof elastic fastening	d) Pandrol clip elastic fastening
- 4) What is Control System?
 - a) Control system is a system in which the output is controlled by varying the input
 - b) Control system is a device that will not manage or regulate the behaviour of other devices using control loops
 - c) Control system is a feedback system that can be both positive and negative
 - d) Control System is a system in which the input is controlled by varying the output
- 5) Which of the following is not the feature of a modern control system?

a) Correct power level	b) No oscillation
c) Quick response	d) Accuracy
- 6) Which of the following element is not used in an automatic control system?

a) Final control element	b) Sensor
c) Oscillator	d) Error detector
- 7) What should be the nature of bandwidth for a good control system?

a) Small	b) Medium
c) Large	d) All of the mentioned

- 8) In a stable control system backlash can cause which of the following?
- a) Overdamping
 - b) Low-level oscillations
 - c) Underdamping
 - d) Poor stability at reduced values of open loop gain
- 9) The input signals to control systems are not known fully ahead of time, the characteristics of control system which suddenly strain a control system are:
- a) Constant velocity and acceleration
 - b) Sudden shock
 - c) Sudden change
 - d) All of the mentioned
- 10) India's first passenger train from Bori Bunder (Mumbai) to Thane was run on which of the following gauge?
- a) Meter gauge
 - b) Standard gauge
 - c) Broad gauge
 - d) Narrow gauge
- 11) Which of the following rail has been standardized for adoption on the Indian railways?
- a) Combination of BH and DH
 - b) Flat footed
 - c) Double headed
 - d) Bull headed
- 12) Why the railway track is made resilient and elastic?
- a) Easy fixing
 - b) It can be adjusted easily
 - c) So that it absorbs shocks
 - d) To make it economic
- 13) Which of the following is also known as another name of inner rail?
- a) Gradient rail
 - b) Cant rail
 - c) Fixed rail
 - d) Slope rail
- 14) Which of the following is the most important strategic reason for the construction of a new railway line?
- a) For creating jobs
 - b) Because of absence of a railway line
 - c) To increase tourists
 - d) To make movement of defense forces easier in case of emergency

Seat No.	
-----------------	--

Set	S
------------	----------

T.Y. (B.Tech.) (Sem - II) (New)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Applications of IT and Control Engineering in Railway (BTN06615)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four. 16**
- a) What is Public Address System? Explain.
 - b) What is typical arrangement of PRS Terminals?
 - c) Write a short note on Unreserved Ticketing System (UTS).
 - d) What is mean by freight operations? Explain.
 - e) Which Network topologies used in FOIS? Give Details.
- Q.3 Attempt any Two. 12**
- a) Explain RMS and TMS.
 - b) Give Application of Information Technology in Railways.
 - c) Explain classification of railway bridges.

Section – II

- Q.4 Attempt any Four. 16**
- a) Write a short note on Auxiliary Warning System.
 - b) Explain different networking devices.
 - c) Give Any four rules of block diagram reduction.
 - d) Give the transfer function of a closed-loop system with proper equation.
 - e) Write note on TELNET (Terminal Network).
- Q.5 Attempt any Two. 12**
- a) What is mean by data logger? Explain.
 - b) What is mean by control system? Give its types.
 - c) Explain Robotic control system.

Seat No.	
----------	--

Set **P**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) Who is the father of Machine Learning?
 - a) Geoffrey Everest Hinton
 - b) Geoffrey Hill
 - c) Geoffrey Chaucer
 - d) None of the above
- 2) Which is FALSE regarding regression?
 - a) It may be used for interpretation
 - b) It is used for prediction
 - c) It discovers causal relationships
 - d) It relates inputs to outputs
- 3) Reinforcement learning is _____.
 - a) Supervised Learning
 - b) Unsupervised Learning
 - c) Award-Based Learning
 - d) None of above
- 4) Which ONE of the following are regression tasks?
 - a) Predict the age of a person
 - b) Predict the country from where the person comes from
 - c) Predict whether the price of petroleum will increase tomorrow
 - d) Predict whether a document is related to science
- 5) What is over fitting?
 - a) Poor result in Training and poor result in test
 - b) Great result in Training and poor result in test
 - c) Great result in Training and Great result in test
 - d) Poor result in Training and Great result in test
- 6) Which one of the following statements is TRUE for a Decision Tree?
 - a) Decision tree is only suitable for the classification problem statement
 - b) In a decision tree, the entropy of a node decreases as we go down a decision tree
 - c) In a decision tree, entropy determines purity
 - d) Decision tree can only be used for only numeric valued and continuous attributes
- 7) Which of the following is the centroid-based clustering method?
 - a) K-means clustering
 - b) DBSCAN clustering
 - c) Hierarchical clustering
 - d) KNN Algorithm

- 8) Which of the following statement is TRUE about the Association rule method?
- a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 9) The most widely used metrics and tools to access a classification model are ____.
- a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 10) What is back propagation?
- a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above
- 11) What is Perceptron?
- a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network
- 12) Applications of NN (Neural Network).
- a) Risk management
 - b) Data validation
 - c) Sales forecasting
 - d) All of the above
- 13) When performing regression or classification which of the following is the correct way to preprocess the data?
- a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 14) Bayes rule can be used for: _____.
- a) Solving queries
 - b) Increasing complexity
 - c) Answering probabilistic query
 - d) Decreasing complexity

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options. 14

- 1) Which of the following statement is TRUE about the Association rule method?
 - a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 2) The most widely used metrics and tools to access a classification model are _____.
 - a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 3) What is back propagation?
 - a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above
- 4) What is Perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network
- 5) Applications of NN (Neural Network).
 - a) Risk management
 - b) Data validation
 - c) Sales forecasting
 - d) All of the above
- 6) When performing regression or classification which of the following is the correct way to preprocess the data?
 - a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 7) Bayes rule can be used for: _____.
 - a) Solving queries
 - b) Increasing complexity
 - c) Answering probabilistic query
 - d) Decreasing complexity

- 8) Who is the father of Machine Learning?
a) Geoffrey Everest Hinton b) Geoffrey Hill
c) Geoffrey Chaucer d) None of the above
- 9) Which is FALSE regarding regression?
a) It may be used for interpretation b) It is used for prediction
c) It discovers causal relationships d) It relates inputs to outputs
- 10) Reinforcement learning is _____.
a) Supervised Learning b) Unsupervised Learning
c) Award-Based Learning d) None of above
- 11) Which ONE of the following are regression tasks?
a) Predict the age of a person
b) Predict the country from where the person comes from
c) Predict whether the price of petroleum will increase tomorrow
d) Predict whether a document is related to science
- 12) What is over fitting?
a) Poor result in Training and poor result in test
b) Great result in Training and poor result in test
c) Great result in Training and Great result in test
d) Poor result in Training and Great result in test
- 13) Which one of the following statements is TRUE for a Decision Tree?
a) Decision tree is only suitable for the classification problem statement
b) In a decision tree, the entropy of a node decreases as we go down a decision tree
c) In a decision tree, entropy determines purity
d) Decision tree can only be used for only numeric valued and continuous attributes
- 14) Which of the following is the centroid-based clustering method?
a) K-means clustering b) DBSCAN clustering
c) Hierarchical clustering d) KNN Algorithm

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Solve any Four: **16**

- a) What is Machine Learning? Explain with two Examples.
- b) Explain the K-Nearest Neighbor Algorithm with example?
- c) What is Feature? Explain the Feature Extraction technique of ML?
- d) Explain the Different Characteristics of Machine Learning Task?
- e) Explain the Assessing Performance of Regression.

Q.3 Attempt any Two. **12**

- a) What are all the databases we are using in ML?
- b) What is Reinforcement Learning? Explain with Examples.
- c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

Q.4 Attempt any Four. **16**

- a) What are Neural network Elements? Explain Basic Perceptron?
- b) List the difference between Supervised and Unsupervised Machine learning?
- c) Write a note on Deep learning.
- d) Write a note on DBSCAN.
- e) Explain Hierarchical Clustering Technique of ML.

Q.5 Attempt any Two. **12**

- a) Explain Back-propagation algorithm of ANN.
- b) Explain Virtual Personal Assistant.
- c) What is the Association rule in ML? Explain with an example.

Seat No.	
----------	--

Set **R**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) What is Perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network
- 2) Applications of NN (Neural Network).

a) Risk management	b) Data validation
c) Sales forecasting	d) All of the above
- 3) When performing regression or classification which of the following is the correct way to preprocess the data?
 - a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 4) Bayes rule can be used for: _____.

a) Solving queries	b) Increasing complexity
c) Answering probabilistic query	d) Decreasing complexity
- 5) Who is the father of Machine Learning?

a) Geoffrey Everest Hinton	b) Geoffrey Hill
c) Geoffrey Chaucer	d) None of the above
- 6) Which is FALSE regarding regression?

a) It may be used for interpretation	b) It is used for prediction
c) It discovers causal relationships	d) It relates inputs to outputs
- 7) Reinforcement learning is _____.

a) Supervised Learning	b) Unsupervised Learning
c) Award-Based Learning	d) None of above

- 8) Which ONE of the following are regression tasks?
- a) Predict the age of a person
 - b) Predict the country from where the person comes from
 - c) Predict whether the price of petroleum will increase tomorrow
 - d) Predict whether a document is related to science
- 9) What is over fitting?
- a) Poor result in Training and poor result in test
 - b) Great result in Training and poor result in test
 - c) Great result in Training and Great result in test
 - d) Poor result in Training and Great result in test
- 10) Which one of the following statements is TRUE for a Decision Tree?
- a) Decision tree is only suitable for the classification problem statement
 - b) In a decision tree, the entropy of a node decreases as we go down a decision tree
 - c) In a decision tree, entropy determines purity
 - d) Decision tree can only be used for only numeric valued and continuous attributes
- 11) Which of the following is the centroid-based clustering method?
- a) K-means clustering
 - b) DBSCAN clustering
 - c) Hierarchical clustering
 - d) KNN Algorithm
- 12) Which of the following statement is TRUE about the Association rule method?
- a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 13) The most widely used metrics and tools to access a classification model are ____.
- a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 14) What is back propagation?
- a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct options.**14**

- 1) Which one of the following statements is TRUE for a Decision Tree?
 - a) Decision tree is only suitable for the classification problem statement
 - b) In a decision tree, the entropy of a node decreases as we go down a decision tree
 - c) In a decision tree, entropy determines purity
 - d) Decision tree can only be used for only numeric valued and continuous attributes
- 2) Which of the following is the centroid-based clustering method?
 - a) K-means clustering
 - b) DBSCAN clustering
 - c) Hierarchical clustering
 - d) KNN Algorithm
- 3) Which of the following statement is TRUE about the Association rule method?
 - a) It determines how strongly or how weakly two objects are connected
 - b) It determines the relation between two objects
 - c) Relation between particular objects
 - d) Relation between frequent item set
- 4) The most widely used metrics and tools to access a classification model are _____.
 - a) Confusion Matrix
 - b) Cost Sensitive accuracy
 - c) Area under the ROC curve
 - d) All of the above
- 5) What is back propagation?
 - a) It is another name given to the curvy function in the Perceptron
 - b) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - c) It is another name given to the curvy function in the Perceptron
 - d) None of the above
- 6) What is Perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) A neural network that contains feedback
 - c) A double layer auto-associative neural network
 - d) An auto-associative neural network

- 7) Applications of NN (Neural Network).
- a) Risk management
 - b) Data validation
 - c) Sales forecasting
 - d) All of the above
- 8) When performing regression or classification which of the following is the correct way to preprocess the data?
- a) Normalize the data ---PCA---Training
 - b) PCA---Normalize PCA output---Training
 - c) Normalize the data---PCA---Normalize PCA output---Training
 - d) None of the above
- 9) Bayes rule can be used for: _____.
- a) Solving queries
 - b) Increasing complexity
 - c) Answering probabilistic query
 - d) Decreasing complexity
- 10) Who is the father of Machine Learning?
- a) Geoffrey Everest Hinton
 - b) Geoffrey Hill
 - c) Geoffrey Chaucer
 - d) None of the above
- 11) Which is FALSE regarding regression?
- a) It may be used for interpretation
 - b) It is used for prediction
 - c) It discovers causal relationships
 - d) It relates inputs to outputs
- 12) Reinforcement learning is _____.
- a) Supervised Learning
 - b) Unsupervised Learning
 - c) Award-Based Learning
 - d) None of above
- 13) Which ONE of the following are regression tasks?
- a) Predict the age of a person
 - b) Predict the country from where the person comes from
 - c) Predict whether the price of petroleum will increase tomorrow
 - d) Predict whether a document is related to science
- 14) What is over fitting?
- a) Poor result in Training and poor result in test
 - b) Great result in Training and poor result in test
 - c) Great result in Training and Great result in test
 - d) Poor result in Training and Great result in test

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April – 2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science Machine Learning (BTN06613)

Day & Date: Monday, 03-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any Four:** **16**
- a) What is Machine Learning? Explain with two Examples.
 - b) Explain the K-Nearest Neighbor Algorithm with example?
 - c) What is Feature? Explain the Feature Extraction technique of ML?
 - d) Explain the Different Characteristics of Machine Learning Task?
 - e) Explain the Assessing Performance of Regression.
- Q.3 Attempt any Two.** **12**
- a) What are all the databases we are using in ML?
 - b) What is Reinforcement Learning? Explain with Examples.
 - c) What is Over-fitting and under-fitting? Explain with examples.

Section – II

- Q.4 Attempt any Four.** **16**
- a) What are Neural network Elements? Explain Basic Perceptron?
 - b) List the difference between Supervised and Unsupervised Machine learning?
 - c) Write a note on Deep learning.
 - d) Write a note on DBSCAN.
 - e) Explain Hierarchical Clustering Technique of ML.
- Q.5 Attempt any Two.** **12**
- a) Explain Back-propagation algorithm of ANN.
 - b) Explain Virtual Personal Assistant.
 - c) What is the Association rule in ML? Explain with an example.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.
 - 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) TE mode is characterized by: _____.
 - a) $E_z = 0$
 - b) $H_z = 0$
 - c) $E_x = 0$
 - d) $E_y = 0$
- 2) For any mode of propagation in a rectangular waveguide, propagation occurs: _____.
 - a) Above the cut off frequency
 - b) Below the cut off frequency
 - c) Only at the cut-off frequency
 - d) Depends on the dimension of the waveguide
- 3) Dominant mode is defined as: _____.
 - a) Mode with the lowest cut off frequency
 - b) Mode with the highest cut off frequency
 - c) Any TEM mode is called a dominant mode
 - d) None of the mentioned
- 4) In TE₁₀ mode of wave propagation in a rectangular waveguide, if the broader dimension of the waveguide is 40 cm, then the cutoff wavelength for that mode is: _____.
 - a) 8 cm
 - b) 6 cm
 - c) 4 cm
 - d) 2 cm
- 5) Which mode of propagation is supported by a strip line?
 - a) TEM mode
 - b) TM mode
 - c) TE mode
 - d) None of the mentioned
- 6) A waveguide acts as a _____.
 - a) Low pass filter
 - b) Band pass filter
 - c) High pass filter
 - d) All of the above
- 7) If the reflection coefficient of a 2 port network is 0.5 then the return loss in the network is: _____.
 - a) 6.5 dB
 - b) 0.15 dB
 - c) 6.020 dB
 - d) 10 dB

- 8) The voltage equation for a 2 port network that can be represented as a matrix is: _____.
- a) $V_1=AV_2 + BI_2$ b) $V_1=CV_2 + DI_2$
c) $V_1=BV_2 + AI_2$ d) $V_1=DV_2 + CI_2$
- 9) The klystron tube used in a klystron amplifier is a _____ type beam amplifier.
- a) Linear beam b) Crossed field
c) Parallel field d) None of the mentioned
- 10) A major disadvantage of klystron amplifier is: _____.
- a) Low power gain b) Low bandwidth
c) High source power d) Design complexity
- 11) The resistance of the PIN diode with positive bias voltage: _____.
- a) Increase b) Decreases
c) Remains constant d) Insufficient data
- 12) When the applied electric field exceeds the threshold value, electrons absorb more energy from the field and become: _____.
- a) hot electrons b) cold electrons
c) emission electrons d) none of the mentioned
- 13) When a reverse bias voltage exceeding the breakdown voltage is applied to an IMPATT diode, it results in: _____.
- a) avalanche multiplication
b) break down of depletion region
c) high reverse saturation current
d) none of the mentioned
- 14) The electrodes of a Gunn diode are made of: _____.
- a) molybdenum b) GaAs
c) gold d) copper

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

Q.2 Attempt any four. 16

- What is the frequency ranges of microwave L-band, X-band and Ku-band? Write one application for each of the above bands for microwave communication.
- Explain the construction and operation of Magic Tee.
- Define coupling factor, directivity and isolation parameters of directional coupler.
- Explain the construction and operation of isolator.
- Write the properties of s-matrix.

Q.3 Attempt any Two 12

- Derive the field expressions for a rectangular waveguide for TE modes of propagation.
- Derive S matrix for H plane tee. Justify the statement “H plane tee acts as a 3 dB splitter”.
- Explain the construction and operation of Gyrator.

Section – II

Q.4 Attempt any four. 16

- What are limitations of conventional tubes at microwave frequencies?
- Explain working of two cavity Klystron with help of Applegate diagram.
- Explain Varactor diode. Discuss its constructional details.
- Write a short note on Schottky barrier diode.
- Explain the steps for frequency measurements

Q.5 Attempt any two 12

- Explain the construction and working of Magnetron.
- What is Avalanche transit time device? Explain the principal of operation of TRAPATT diode.
- Draw and explain any two techniques for measurement of VSWR.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.
 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The voltage equation for a 2 port network that can be represented as a matrix is: _____.

a) $V_1=AV_2 + Bl_2$	b) $V_1=CV_2 + Dl_2$
c) $V_1=BV_2 + Al_2$	d) $V_1=DV_2 + Cl_2$
- 2) The klystron tube used in a klystron amplifier is a _____ type beam amplifier.

a) Linear beam	b) Crossed field
c) Parallel field	d) None of the mentioned
- 3) A major disadvantage of klystron amplifier is: _____.

a) Low power gain	b) Low bandwidth
c) High source power	d) Design complexity
- 4) The resistance of the PIN diode with positive bias voltage: _____.

a) Increase	b) Decreases
c) Remains constant	d) Insufficient data
- 5) When the applied electric field exceeds the threshold value, electrons absorb more energy from the field and become: _____.

a) hot electrons	b) cold electrons
c) emission electrons	d) none of the mentioned
- 6) When a reverse bias voltage exceeding the breakdown voltage is applied to an IMPATT diode, it results in: _____.

a) avalanche multiplication	
b) break down of depletion region	
c) high reverse saturation current	
d) none of the mentioned	
- 7) The electrodes of a Gunn diode are made of: _____.

a) molybdenum	b) GaAs
c) gold	d) copper

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

Q.2 Attempt any four. 16

- What is the frequency ranges of microwave L-band, X-band and Ku-band? Write one application for each of the above bands for microwave communication.
- Explain the construction and operation of Magic Tee.
- Define coupling factor, directivity and isolation parameters of directional coupler.
- Explain the construction and operation of isolator.
- Write the properties of s-matrix.

Q.3 Attempt any Two 12

- Derive the field expressions for a rectangular waveguide for TE modes of propagation.
- Derive S matrix for H plane tee. Justify the statement “H plane tee acts as a 3 dB splitter”.
- Explain the construction and operation of Gyrator.

Section – II

Q.4 Attempt any four. 16

- What are limitations of conventional tubes at microwave frequencies?
- Explain working of two cavity Klystron with help of Applegate diagram.
- Explain Varactor diode. Discuss its constructional details.
- Write a short note on Schottky barrier diode.
- Explain the steps for frequency measurements

Q.5 Attempt any two 12

- Explain the construction and working of Magnetron.
- What is Avalanche transit time device? Explain the principal of operation of TRAPATT diode.
- Draw and explain any two techniques for measurement of VSWR.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.
 - 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The resistance of the PIN diode with positive bias voltage: _____.
 - a) Increase
 - b) Decreases
 - c) Remains constant
 - d) Insufficient data
- 2) When the applied electric field exceeds the threshold value, electrons absorb more energy from the field and become: _____.
 - a) hot electrons
 - b) cold electrons
 - c) emission electrons
 - d) none of the mentioned
- 3) When a reverse bias voltage exceeding the breakdown voltage is applied to an IMPATT diode, it results in: _____.
 - a) avalanche multiplication
 - b) break down of depletion region
 - c) high reverse saturation current
 - d) none of the mentioned
- 4) The electrodes of a Gunn diode are made of: _____.
 - a) molybdenum
 - b) GaAs
 - c) gold
 - d) copper
- 5) TE mode is characterized by: _____.
 - a) $E_z = 0$
 - b) $H_z = 0$
 - c) $E_x = 0$
 - d) $E_y = 0$
- 6) For any mode of propagation in a rectangular waveguide, propagation occurs: _____.
 - a) Above the cut off frequency
 - b) Below the cut off frequency
 - c) Only at the cut-off frequency
 - d) Depends on the dimension of the waveguide

- 7) Dominant mode is defined as: _____.
- a) Mode with the lowest cut off frequency
 - b) Mode with the highest cut off frequency
 - c) Any TEM mode is called a dominant mode
 - d) None of the mentioned
- 8) In TE₁₀ mode of wave propagation in a rectangular waveguide, if the broader dimension of the waveguide is 40 cm, then the cutoff wavelength for that mode is: _____.
- a) 8 cm
 - b) 6 cm
 - c) 4 cm
 - d) 2 cm
- 9) Which mode of propagation is supported by a strip line?
- a) TEM mode
 - b) TM mode
 - c) TE mode
 - d) None of the mentioned
- 10) A waveguide acts as a _____.
- a) Low pass filter
 - b) Band pass filter
 - c) High pass filter
 - d) All of the above
- 11) If the reflection coefficient of a 2 port network is 0.5 then the return loss in the network is: _____.
- a) 6.5 dB
 - b) 0.15 dB
 - c) 6.020 dB
 - d) 10 dB
- 12) The voltage equation for a 2 port network that can be represented as a matrix is: _____.
- a) $V_1 = AV_2 + BI_2$
 - b) $V_1 = CV_2 + DI_2$
 - c) $V_1 = BV_2 + AI_2$
 - d) $V_1 = DV_2 + CI_2$
- 13) The klystron tube used in a klystron amplifier is a _____ type beam amplifier.
- a) Linear beam
 - b) Crossed field
 - c) Parallel field
 - d) None of the mentioned
- 14) A major disadvantage of klystron amplifier is: _____.
- a) Low power gain
 - b) Low bandwidth
 - c) High source power
 - d) Design complexity

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

Q.2 Attempt any four. 16

- What is the frequency ranges of microwave L-band, X-band and Ku-band? Write one application for each of the above bands for microwave communication.
- Explain the construction and operation of Magic Tee.
- Define coupling factor, directivity and isolation parameters of directional coupler.
- Explain the construction and operation of isolator.
- Write the properties of s-matrix.

Q.3 Attempt any Two 12

- Derive the field expressions for a rectangular waveguide for TE modes of propagation.
- Derive S matrix for H plane tee. Justify the statement “H plane tee acts as a 3 dB splitter”.
- Explain the construction and operation of Gyrator.

Section – II

Q.4 Attempt any four. 16

- What are limitations of conventional tubes at microwave frequencies?
- Explain working of two cavity Klystron with help of Applegate diagram.
- Explain Varactor diode. Discuss its constructional details.
- Write a short note on Schottky barrier diode.
- Explain the steps for frequency measurements

Q.5 Attempt any two 12

- Explain the construction and working of Magnetron.
- What is Avalanche transit time device? Explain the principal of operation of TRAPATT diode.
- Draw and explain any two techniques for measurement of VSWR.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.
 5) Use of non-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A waveguide acts as a _____.
 a) Low pass filter b) Band pass filter
 c) High pass filter d) All of the above
- 2) If the reflection coefficient of a 2 port network is 0.5 then the return loss in the network is: _____.
 a) 6.5 dB b) 0.15 dB
 c) 6.020 dB d) 10 dB
- 3) The voltage equation for a 2 port network that can be represented as a matrix is: _____.
 a) $V_1=AV_2 + BI_2$ b) $V_1=CV_2 + DI_2$
 c) $V_1=BV_2 + AI_2$ d) $V_1=DV_2 + CI_2$
- 4) The klystron tube used in a klystron amplifier is a _____ type beam amplifier.
 a) Linear beam b) Crossed field
 c) Parallel field d) None of the mentioned
- 5) A major disadvantage of klystron amplifier is: _____.
 a) Low power gain b) Low bandwidth
 c) High source power d) Design complexity
- 6) The resistance of the PIN diode with positive bias voltage: _____.
 a) Increase b) Decreases
 c) Remains constant d) Insufficient data
- 7) When the applied electric field exceeds the threshold value, electrons absorb more energy from the field and become: _____.
 a) hot electrons b) cold electrons
 c) emission electrons d) none of the mentioned

- 8) When a reverse bias voltage exceeding the breakdown voltage is applied to an IMPATT diode, it results in: _____.
- avalanche multiplication
 - break down of depletion region
 - high reverse saturation current
 - none of the mentioned
- 9) The electrodes of a Gunn diode are made of: _____.
- molybdenum
 - GaAs
 - gold
 - copper
- 10) TE mode is characterized by: _____.
- $E_z = 0$
 - $H_z = 0$
 - $E_x = 0$
 - $E_y = 0$
- 11) For any mode of propagation in a rectangular waveguide, propagation occurs: _____.
- Above the cut off frequency
 - Below the cut off frequency
 - Only at the cut-off frequency
 - Depends on the dimension of the waveguide
- 12) Dominant mode is defined as: _____.
- Mode with the lowest cut off frequency
 - Mode with the highest cut off frequency
 - Any TEM mode is called a dominant mode
 - None of the mentioned
- 13) In TE₁₀ mode of wave propagation in a rectangular waveguide, if the broader dimension of the waveguide is 40 cm, then the cutoff wavelength for that mode is: _____.
- 8 cm
 - 6 cm
 - 4 cm
 - 2 cm
- 14) Which mode of propagation is supported by a strip line?
- TEM mode
 - TM mode
 - TE mode
 - None of the mentioned

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (BTN06701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

Q.2 Attempt any four. 16

- What is the frequency ranges of microwave L-band, X-band and Ku-band? Write one application for each of the above bands for microwave communication.
- Explain the construction and operation of Magic Tee.
- Define coupling factor, directivity and isolation parameters of directional coupler.
- Explain the construction and operation of isolator.
- Write the properties of s-matrix.

Q.3 Attempt any Two 12

- Derive the field expressions for a rectangular waveguide for TE modes of propagation.
- Derive S matrix for H plane tee. Justify the statement “H plane tee acts as a 3 dB splitter”.
- Explain the construction and operation of Gyrator.

Section – II

Q.4 Attempt any four. 16

- What are limitations of conventional tubes at microwave frequencies?
- Explain working of two cavity Klystron with help of Applegate diagram.
- Explain Varactor diode. Discuss its constructional details.
- Write a short note on Schottky barrier diode.
- Explain the steps for frequency measurements

Q.5 Attempt any two 12

- Explain the construction and working of Magnetron.
- What is Avalanche transit time device? Explain the principal of operation of TRAPATT diode.
- Draw and explain any two techniques for measurement of VSWR.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following layer of OSI model also called end-to-end layer?
 - a) Presentation layer
 - b) Network layer
 - c) Session layer
 - d) Transport layer
- 2) UDP is _____ type of Protocol.
 - a) Connection oriented
 - b) Control
 - c) Connectionless
 - d) None
- 3) A subnet mask separates _____.
 - a) Network ID and Host ID
 - b) Host ID
 - c) Work groups from each other
 - d) All of the above
- 4) How many bytes is an Ethernet address?
 - a) 3
 - b) 4
 - c) 5
 - d) 6
- 5) Which of the following standards used for CSMA/CD LAN?
 - a) IEEE 802.3
 - b) IEEE 802.2
 - c) IEEE 802.5
 - d) IEEE 802.4
- 6) IEEE 802.3 uses _____ cable.
 - a) 10Base5
 - b) 10Base2
 - c) 10BaseT
 - d) All of the above
- 7) How many levels of addressing is provided in TCP/IP protocol?
 - a) One
 - b) Two
 - c) Three
 - d) Four
- 8) IPv6 has _____ bit addresses.
 - a) 32
 - b) 64
 - c) 128
 - d) Variable

- 9) The _____ layer adds ahead to the packet coming from the upper layer that includes the logical addresses of the sender and receiver.
- a) physical
 - b) data link
 - c) network
 - d) none of the above
- 10) A port address in TCP/IP is _____ bits long.
- a) 32
 - b) 48
 - c) 16
 - d) none of the above
- 11) Identify the class of the following IP address: 191.1.2.3.
- a) Class A
 - b) Class B
 - c) Class C
 - d) none of the above
- 12) _____ is a dynamic mapping protocol in which a physical address is found for a given logical address.
- a) ARP
 - b) RARP
 - c) both a and b
 - d) none of the above
- 13) ICMP messages are divided into two broad categories: _____.
- a) query and error reporting messages
 - b) request and response messages
 - c) request and reply messages
 - d) none of the above
- 14) _____ allows you to connect and login to a remote computer.
- a) Telnet
 - b) FTP
 - c) HTTP
 - d) SMTP

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three. 12**
- a) What do you mean by network topology? Discuss Star and Ring topology with its advantages and disadvantages.
 - b) What is the advantage of piggybacking of the acknowledgement?
 - c) Discuss stop and wait protocol for flow control.
 - d) Differentiate between circuit switching and packet switching.
- Q.3 Solve any Two. 16**
- a) With the help of frame format explain in detail IEEE802.3 Ethernet LAN Standard.
 - b) Draw OSI Layer model and discuss the function of each layer.
 - c) List the different framing methods and explain any one of them in detail.

Section – II

- Q.4 Solve any Three. 12**
- a) Discuss shortest path routing algorithm with suitable example.
 - b) Draw IPV4 header format and discuss the fields related to fragmentation and reassembly.
 - c) Draw and explain UDP header fields.
 - d) Write a short note on DNS (Domain Name System).
- Q.5 Solve any Two. 16**
- a) List and explain different ICMP Error messages.
 - b) Write a short note on ARP and RARP
 - c) Write short note on:
 - i) FTP
 - ii) TELNET

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) IPv6 has _____ bit addresses.
 - a) 32
 - b) 64
 - c) 128
 - d) Variable
- 2) The _____ layer adds ahead to the packet coming from the upper layer that includes the logical addresses of the sender and receiver.
 - a) physical
 - b) data link
 - c) network
 - d) none of the above
- 3) A port address in TCP/IP is _____ bits long.
 - a) 32
 - b) 48
 - c) 16
 - d) none of the above
- 4) Identify the class of the following IP address: 191.1.2.3.
 - a) Class A
 - b) Class B
 - c) Class C
 - d) none of the above
- 5) _____ is a dynamic mapping protocol in which a physical address is found for a given logical address.
 - a) ARP
 - b) RARP
 - c) both a and b
 - d) none of the above
- 6) ICMP messages are divided into two broad categories: _____.
 - a) query and error reporting messages
 - b) request and response messages
 - c) request and reply messages
 - d) none of the above
- 7) _____ allows you to connect and login to a remote computer.
 - a) Telnet
 - b) FTP
 - c) HTTP
 - d) SMTP
- 8) Which of the following layer of OSI model also called end-to-end layer?
 - a) Presentation layer
 - b) Network layer
 - c) Session layer
 - d) Transport layer

- 9) UDP is _____ type of Protocol.
- | | |
|------------------------|------------|
| a) Connection oriented | b) Control |
| c) Connectionless | d) None |
- 10) A subnet mask separates _____.
- | |
|--------------------------------|
| a) Network ID and Host ID |
| b) Host ID |
| c) Work groups from each other |
| d) All of the above |
- 11) How many bytes is an Ethernet address?
- | | |
|------|------|
| a) 3 | b) 4 |
| c) 5 | d) 6 |
- 12) Which of the following standards used for CSMA/CD LAN?
- | | |
|---------------|---------------|
| a) IEEE 802.3 | b) IEEE 802.2 |
| c) IEEE 802.5 | d) IEEE 802.4 |
- 13) IEEE 802.3 uses _____ cable.
- | | |
|------------|---------------------|
| a) 10Base5 | b) 10Base2 |
| c) 10BaseT | d) All of the above |
- 14) How many levels of addressing is provided in TCP/IP protocol?
- | | |
|----------|---------|
| a) One | b) Two |
| c) Three | d) Four |

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Three. 12

- a) What do you mean by network topology? Discuss Star and Ring topology with its advantages and disadvantages.
- b) What is the advantage of piggybacking of the acknowledgement?
- c) Discuss stop and wait protocol for flow control.
- d) Differentiate between circuit switching and packet switching.

Q.3 Solve any Two. 16

- a) With the help of frame format explain in detail IEEE802.3 Ethernet LAN Standard.
- b) Draw OSI Layer model and discuss the function of each layer.
- c) List the different framing methods and explain any one of them in detail.

Section – II

Q.4 Solve any Three. 12

- a) Discuss shortest path routing algorithm with suitable example.
- b) Draw IPV4 header format and discuss the fields related to fragmentation and reassembly.
- c) Draw and explain UDP header fields.
- d) Write a short note on DNS (Domain Name System).

Q.5 Solve any Two. 16

- a) List and explain different ICMP Error messages.
- b) Write a short note on ARP and RARP
- c) Write short note on:
 - i) FTP
 - ii) TELNET

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Identify the class of the following IP address: 191.1.2.3.
 - a) Class A
 - b) Class B
 - c) Class C
 - d) none of the above

- 2) _____ is a dynamic mapping protocol in which a physical address is found for a given logical address.
 - a) ARP
 - b) RARP
 - c) both a and b
 - d) none of the above

- 3) ICMP messages are divided into two broad categories: _____.
 - a) query and error reporting messages
 - b) request and response messages
 - c) request and reply messages
 - d) none of the above

- 4) _____ allows you to connect and login to a remote computer.
 - a) Telnet
 - b) FTP
 - c) HTTP
 - d) SMTP

- 5) Which of the following layer of OSI model also called end-to-end layer?
 - a) Presentation layer
 - b) Network layer
 - c) Session layer
 - d) Transport layer

- 6) UDP is _____ type of Protocol.
 - a) Connection oriented
 - b) Control
 - c) Connectionless
 - d) None

- 7) A subnet mask separates _____.
 - a) Network ID and Host ID
 - b) Host ID
 - c) Work groups from each other
 - d) All of the above

- 8) How many bytes is an Ethernet address?
 - a) 3
 - b) 4
 - c) 5
 - d) 6

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three. 12**
- a) What do you mean by network topology? Discuss Star and Ring topology with its advantages and disadvantages.
 - b) What is the advantage of piggybacking of the acknowledgement?
 - c) Discuss stop and wait protocol for flow control.
 - d) Differentiate between circuit switching and packet switching.
- Q.3 Solve any Two. 16**
- a) With the help of frame format explain in detail IEEE802.3 Ethernet LAN Standard.
 - b) Draw OSI Layer model and discuss the function of each layer.
 - c) List the different framing methods and explain any one of them in detail.

Section – II

- Q.4 Solve any Three. 12**
- a) Discuss shortest path routing algorithm with suitable example.
 - b) Draw IPV4 header format and discuss the fields related to fragmentation and reassembly.
 - c) Draw and explain UDP header fields.
 - d) Write a short note on DNS (Domain Name System).
- Q.5 Solve any Two. 16**
- a) List and explain different ICMP Error messages.
 - b) Write a short note on ARP and RARP
 - c) Write short note on:
 - i) FTP
 - ii) TELNET

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) IEEE 802.3 uses _____ cable.
 - a) 10Base5
 - b) 10Base2
 - c) 10BaseT
 - d) All of the above
- 2) How many levels of addressing is provided in TCP/IP protocol?
 - a) One
 - b) Two
 - c) Three
 - d) Four
- 3) IPv6 has _____ bit addresses.
 - a) 32
 - b) 64
 - c) 128
 - d) Variable
- 4) The _____ layer adds ahead to the packet coming from the upper layer that includes the logical addresses of the sender and receiver.
 - a) physical
 - b) data link
 - c) network
 - d) none of the above
- 5) A port address in TCP/IP is _____ bits long.
 - a) 32
 - b) 48
 - c) 16
 - d) none of the above
- 6) Identify the class of the following IP address: 191.1.2.3.
 - a) Class A
 - b) Class B
 - c) Class C
 - d) none of the above
- 7) _____ is a dynamic mapping protocol in which a physical address is found for a given logical address.
 - a) ARP
 - b) RARP
 - c) both a and b
 - d) none of the above
- 8) ICMP messages are divided into two broad categories: _____.
 - a) query and error reporting messages
 - b) request and response messages
 - c) request and reply messages
 - d) none of the above

- 9) _____ allows you to connect and login to a remote computer.
- a) Telnet
 - b) FTP
 - c) HTTP
 - d) SMTP
- 10) Which of the following layer of OSI model also called end-to-end layer?
- a) Presentation layer
 - b) Network layer
 - c) Session layer
 - d) Transport layer
- 11) UDP is _____ type of Protocol.
- a) Connection oriented
 - b) Control
 - c) Connectionless
 - d) None
- 12) A subnet mask separates _____.
- a) Network ID and Host ID
 - b) Host ID
 - c) Work groups from each other
 - d) All of the above
- 13) How many bytes is an Ethernet address?
- a) 3
 - b) 4
 - c) 5
 - d) 6
- 14) Which of the following standards used for CSMA/CD LAN?
- a) IEEE 802.3
 - b) IEEE 802.2
 - c) IEEE 802.5
 - d) IEEE 802.4

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (BTN06702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three.** **12**
- a) What do you mean by network topology? Discuss Star and Ring topology with its advantages and disadvantages.
 - b) What is the advantage of piggybacking of the acknowledgement?
 - c) Discuss stop and wait protocol for flow control.
 - d) Differentiate between circuit switching and packet switching.
- Q.3 Solve any Two.** **16**
- a) With the help of frame format explain in detail IEEE802.3 Ethernet LAN Standard.
 - b) Draw OSI Layer model and discuss the function of each layer.
 - c) List the different framing methods and explain any one of them in detail.

Section – II

- Q.4 Solve any Three.** **12**
- a) Discuss shortest path routing algorithm with suitable example.
 - b) Draw IPV4 header format and discuss the fields related to fragmentation and reassembly.
 - c) Draw and explain UDP header fields.
 - d) Write a short note on DNS (Domain Name System).
- Q.5 Solve any Two.** **16**
- a) List and explain different ICMP Error messages.
 - b) Write a short note on ARP and RARP
 - c) Write short note on:
 - i) FTP
 - ii) TELNET

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions (Each Question 1 marks)

14

- 1) Which of the following is a characteristic of Verilog HDL?
 - a) Strongly typed language
 - b) Better library
 - c) Case sensitive
 - d) Not portable
- 2) Which of the following loops are supported by Verilog?
 - a) if-else loop
 - b) for loop
 - c) while loop
 - d) All the above
- 3) @posedge means _____
 - a) Transition from x to 1
 - b) Transition from z to 1, x
 - c) Transition from 0 to 1, x or z
 - d) Transition from 1 to 0
- 4) To introduce delays in a circuit, we can use a _____
 - a) Buffer
 - b) Inverter
 - c) EXOR Gate
 - d) Flip-Flop
- 5) The power dissipation in Pseudo-nMOS is reduced to about _____ compared to nMOS device.
 - a) 50%
 - b) 30%
 - c) 60%
 - d) 70%
- 6) MOS transistors consist of which of the following?
 - a) Semiconductor layer
 - b) Metal layer
 - c) Layer of silicon-di-oxide
 - d) All of the mentioned
- 7) Why we needed HDLs while having many traditional Programming languages?
 - a) Traditional programming languages are complex
 - b) Some characteristics of digital hardware couldn't be captured by traditional
 - c) HDLs are complementary to traditional programming languages to complete the design process
 - d) HDLs offers more complexity than traditional programming languages

Seat No.	
----------	--

Set P

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

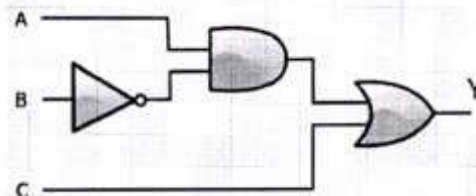
Section – I

Q.2 Solve any four of the following **16**

- Write a Verilog code for T Flip flop.
- List all the data types available in Verilog HDL. Explain any three data types with examples.
- Explain operators in Verilog.
- Explain the following control statement with an example.
 - if else statement
 - For loop
- Write a Verilog code for Full Adder.

Q.3 Solve any two of the following. **12**

- Explain Gate Propagation Delay in Verilog
- Which are the Styles of Description in Verilog.
- Write a Verilog code for output Y in Data Flow, Behavioral and Structural Style Modelling. Circuit diagram is as shown below



Section – II

Q.4 Solve any four of the following. **16**

- Design two input OR/NOR gate using complimentary pass transistor logic.
- What is accumulation, depletion and enhancement mode of E MOSFET?
- What is pseudo NMOS logic? Implement sum of full adder using this logic
- Differentiate between CPLD and FPGA Architecture.
- Draw and explain architecture of FPGA.

Q.5 Solve any two of the following. **12**

- What is static and dynamic power dissipation of CMOS inverter?
- How to obtain DC characteristics of CMOS inverter? What is effect of β_n/β_p on this characteristic?
- Design following equation using CMOS Logic.
$$Y = \overline{(AB + CD)}E$$

Seat No.	
----------	--

Set Q

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions (Each Question 1 marks) 14

- 1) A Verilog code contains Keyword always, which style of modelling is used in this code?
 - a) Behavioral
 - b) Structural
 - c) Dataflow
 - d) None of these
- 2) Let $x = 4'b1010$ then $\&x$ and $|x$ will result in _____ and _____ respectively.
 - a) $1'b1$, $1'b1$
 - b) $1'b0$ and $1'b1$
 - c) $1'b0$, $'b1$
 - d) Can not be determined
- 3) Default value of a reg data type is _____.
 - a) 0
 - b) x
 - c) 1
 - d) z
- 4) VLSI technology uses _____ to form integrated circuit.
 - a) transistors
 - b) diodes
 - c) switches
 - d) buffers
- 5) Electrical charge flows from _____.
 - a) source to drain
 - b) source to ground
 - c) drain to source
 - d) source to gate
- 6) In Pseudo-nMOS logic, n transistor operates in _____.
 - a) cut off region
 - b) resistive region
 - c) saturation region
 - d) non saturation region
- 7) Most Lookup tables in FPGAs use _____ inputs, resulting in _____ possible outputs.
 - a) 4, 16
 - b) 8, 16
 - c) 4, 12
 - d) 6, 12
- 8) Which of the following is a characteristic of Verilog HDL?
 - a) Strongly typed language
 - b) Better library
 - c) Case sensitive
 - d) Not portable
- 9) Which of the following loops are supported by Verilog?
 - a) if-else loop
 - b) for loop
 - c) while loop
 - d) All the above

- 10)** @posedge means _____
- a) Transition from x to 1
 - b) Transition from z to 1, x
 - c) Transition from 0 to 1, x or z
 - d) Transition from 1 to 0
- 11)** To introduce delays in a circuit, we can use a _____
- a) Buffer
 - b) Inverter
 - c) EXOR Gate
 - d) Flip-Flop
- 12)** The power dissipation in Pseudo-nMOS is reduced to about _____ compared to nMOS device.
- a) 50%
 - b) 30%
 - c) 60%
 - d) 70%
- 13)** MOS transistors consist of which of the following?
- a) Semiconductor layer
 - b) Metal layer
 - c) Layer of silicon-di-oxide
 - d) All of the mentioned
- 14)** Why we needed HDLs while having many traditional Programming languages?
- a) Traditional programming languages are complex
 - b) Some characteristics of digital hardware couldn't be captured by traditional
 - c) HDLs are complementary to traditional programming languages to complete the design process
 - d) HDLs offers more complexity than traditional programming languages

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

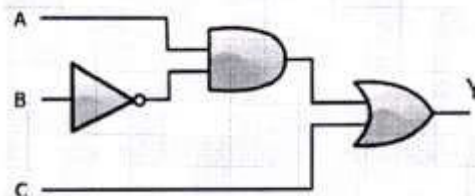
Section – I

Q.2 Solve any four of the following **16**

- Write a Verilog code for T Flip flop.
- List all the data types available in Verilog HDL. Explain any three data types with examples.
- Explain operators in Verilog.
- Explain the following control statement with an example.
 - if else statement
 - For loop
- Write a Verilog code for Full Adder.

Q.3 Solve any two of the following. **12**

- Explain Gate Propagation Delay in Verilog
- Which are the Styles of Description in Verilog.
- Write a Verilog code for output Y in Data Flow, Behavioral and Structural Style Modelling. Circuit diagram is as shown below



Section – II

Q.4 Solve any four of the following. **16**

- Design two input OR/NOR gate using complimentary pass transistor logic.
- What is accumulation, depletion and enhancement mode of E MOSFET?
- What is pseudo NMOS logic? Implement sum of full adder using this logic
- Differentiate between CPLD and FPGA Architecture.
- Draw and explain architecture of FPGA.

Q.5 Solve any two of the following. **12**

- What is static and dynamic power dissipation of CMOS inverter?
- How to obtain DC characteristics of CMOS inverter? What is effect of β_n/β_p on this characteristic?
- Design following equation using CMOS Logic.
$$Y = \overline{(AB + CD)}E$$

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions (Each Question 1 marks)

14

- 1) VLSI technology uses _____ to form integrated circuit.
 - a) transistors
 - b) diodes
 - c) switches
 - d) buffers
- 2) Electrical charge flows from _____.
 - a) source to drain
 - b) source to ground
 - c) drain to source
 - d) source to gate
- 3) In Pseudo-nMOS logic, n transistor operates in _____.
 - a) cut off region
 - b) resistive region
 - c) saturation region
 - d) non saturation region
- 4) Most Lookup tables in FPGAs use _____ inputs, resulting in _____ possible outputs.
 - a) 4, 16
 - b) 8, 16
 - c) 4, 12
 - d) 6, 12
- 5) Which of the following is a characteristic of Verilog HDL?
 - a) Strongly typed language
 - b) Better library
 - c) Case sensitive
 - d) Not portable
- 6) Which of the following loops are supported by Verilog?
 - a) if-else loop
 - b) for loop
 - c) while loop
 - d) All the above
- 7) @posedge means _____.
 - a) Transition from x to 1
 - b) Transition from z to 1, x
 - c) Transition from 0 to 1, x or z
 - d) Transition from 1 to 0
- 8) To introduce delays in a circuit, we can use a _____.
 - a) Buffer
 - b) Inverter
 - c) EXOR Gate
 - d) Flip-Flop
- 9) The power dissipation in Pseudo-nMOS is reduced to about _____ compared to nMOS device.
 - a) 50%
 - b) 30%
 - c) 60%
 - d) 70%

- 10) MOS transistors consist of which of the following?
- a) Semiconductor layer
 - b) Metal layer
 - c) Layer of silicon-di-oxide
 - d) All of the mentioned
- 11) Why we needed HDLs while having many traditional Programming languages?
- a) Traditional programming languages are complex
 - b) Some characteristics of digital hardware couldn't be captured by traditional
 - c) HDLs are complementary to traditional programming languages to complete the design process
 - d) HDLs offers more complexity than traditional programming languages
- 12) A Verilog code contains Keyword always, which style of modelling is used in this code?
- a) Behavioral
 - b) Structural
 - c) Dataflow
 - d) None of these
- 13) Let $x = 4'b1010$ then $\&x$ and $|x$ will result in _____ and _____ respectively.
- a) $1'b1$, $1'b1$
 - b) $1'b0$ and $1'b1$
 - c) $1'b0$, $'b1$
 - d) Can not be determined
- 14) Default value of a reg data type is _____.
- a) 0
 - b) x
 - c) 1
 - d) z

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

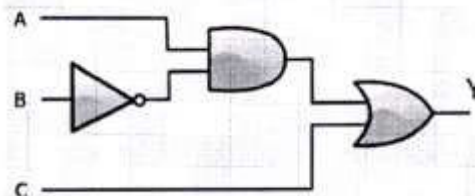
Section – I

Q.2 Solve any four of the following **16**

- Write a Verilog code for T Flip flop.
- List all the data types available in Verilog HDL. Explain any three data types with examples.
- Explain operators in Verilog.
- Explain the following control statement with an example.
 - if else statement
 - For loop
- Write a Verilog code for Full Adder.

Q.3 Solve any two of the following. **12**

- Explain Gate Propagation Delay in Verilog
- Which are the Styles of Description in Verilog.
- Write a Verilog code for output Y in Data Flow, Behavioral and Structural Style Modelling. Circuit diagram is as shown below



Section – II

Q.4 Solve any four of the following. **16**

- Design two input OR/NOR gate using complimentary pass transistor logic.
- What is accumulation, depletion and enhancement mode of E MOSFET?
- What is pseudo NMOS logic? Implement sum of full adder using this logic
- Differentiate between CPLD and FPGA Architecture.
- Draw and explain architecture of FPGA.

Q.5 Solve any two of the following. **12**

- What is static and dynamic power dissipation of CMOS inverter?
- How to obtain DC characteristics of CMOS inverter? What is effect of β_n/β_p on this characteristic?
- Design following equation using CMOS Logic.
$$Y = \overline{(AB + CD)}E$$

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions (Each Question 1 marks) 14

- 1) MOS transistors consist of which of the following?
 - a) Semiconductor layer
 - b) Metal layer
 - c) Layer of silicon-di-oxide
 - d) All of the mentioned
- 2) Why we needed HDLs while having many traditional Programming languages?
 - a) Traditional programming languages are complex
 - b) Some characteristics of digital hardware couldn't be captured by traditional
 - c) HDLs are complementary to traditional programming languages to complete the design process
 - d) HDLs offers more complexity than traditional programming languages
- 3) A Verilog code contains Keyword always, which style of modelling is used in this code?
 - a) Behavioral
 - b) Structural
 - c) Dataflow
 - d) None of these
- 4) Let $x = 4'b1010$ then $\&x$ and $|x$ will result in _____ and _____ respectively.
 - a) $1'b1$, $1'b1$
 - b) $1'b0$ and $1'b1$
 - c) $1'b0$, $'b1$
 - d) Can not be determined
- 5) Default value of a reg data type is _____.
 - a) 0
 - b) x
 - c) 1
 - d) z
- 6) VLSI technology uses _____ to form integrated circuit.
 - a) transistors
 - b) diodes
 - c) switches
 - d) buffers
- 7) Electrical charge flows from _____.
 - a) source to drain
 - b) source to ground
 - c) drain to source
 - d) source to gate
- 8) In Pseudo-nMOS logic, n transistor operates in _____.
 - a) cut off region
 - b) resistive region
 - c) saturation region
 - d) non saturation region

- 9) Most Lookup tables in FPGAs use _____ inputs, resulting in _____ possible outputs.
- | | |
|----------|----------|
| a) 4, 16 | b) 8, 16 |
| c) 4, 12 | d) 6, 12 |
- 10) Which of the following is a characteristic of Verilog HDL?
- | | |
|----------------------------|-------------------|
| a) Strongly typed language | b) Better library |
| c) Case sensitive | d) Not portable |
- 11) Which of the following loops are supported by Verilog?
- | | |
|-----------------|------------------|
| a) if-else loop | b) for loop |
| c) while loop | d) All the above |
- 12) @posedge means _____
- | | |
|-----------------------------------|------------------------------|
| a) Transition from x to 1 | b) Transition from z to 1, x |
| c) Transition from 0 to 1, x or z | d) Transition from 1 to 0 |
- 13) To introduce delays in a circuit, we can use a _____
- | | |
|--------------|--------------|
| a) Buffer | b) Inverter |
| c) EXOR Gate | d) Flip-Flop |
- 14) The power dissipation in Pseudo-nMOS is reduced to about _____ compared to nMOS device.
- | | |
|--------|--------|
| a) 50% | b) 30% |
| c) 60% | d) 70% |

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
VLSI Design (BTN06703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

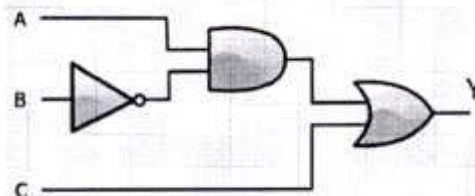
Section – I

Q.2 Solve any four of the following **16**

- Write a Verilog code for T Flip flop.
- List all the data types available in Verilog HDL. Explain any three data types with examples.
- Explain operators in Verilog.
- Explain the following control statement with an example.
 - if else statement
 - For loop
- Write a Verilog code for Full Adder.

Q.3 Solve any two of the following. **12**

- Explain Gate Propagation Delay in Verilog
- Which are the Styles of Description in Verilog.
- Write a Verilog code for output Y in Data Flow, Behavioral and Structural Style Modelling. Circuit diagram is as shown below



Section – II

Q.4 Solve any four of the following. **16**

- Design two input OR/NOR gate using complimentary pass transistor logic.
- What is accumulation, depletion and enhancement mode of E MOSFET?
- What is pseudo NMOS logic? Implement sum of full adder using this logic
- Differentiate between CPLD and FPGA Architecture.
- Draw and explain architecture of FPGA.

Q.5 Solve any two of the following. **12**

- What is static and dynamic power dissipation of CMOS inverter?
- How to obtain DC characteristics of CMOS inverter? What is effect of β_n/β_p on this characteristic?
- Design following equation using CMOS Logic.
$$Y = \overline{(AB + CD)}E$$

Seat
No.Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct Answer.**14**

- 1) What is the function of the input/output (I/O) module in a PLC?
 - a) To provide power to the PLC
 - b) To store the program
 - c) To interface with the input and output devices
 - d) To communicate with other PLCs
- 2) Which criteria should be prioritized when selecting a PLC for a high-speed manufacturing process?
 - a) Communication protocols
 - b) Processing speed of the PLC
 - c) Programming capabilities
 - d) Compatibility with existing systems
- 3) Current flows into the _____.
 - a) Input terminal of a sinking DC input module
 - b) Input terminal of a sinking output field device
 - c) Output terminal of a sinking input field device
 - d) All of the above
- 4) Which of the following is not a common specification of a PLC?

a) Number of inputs and outputs	b) Memory capacity
c) Processing speed	d) Operating system
- 5) Which of the following sensors is used to detect the presence or absence of an object?

a) Pressure sensor	b) Temperature sensor
c) Proximity sensor	d) Accelerometer
- 6) Which one of the following is a basic component of pneumatic power system?

a) Air tank	b) Compressor
c) Valves	d) All of the above
- 7) Electrical strain gauge works on the principle of _____.

a) variation of resistance	b) variation of capacitance
c) variation of inductance	d) variation of area

- 8) What is the purpose of using a stepper motor in a PLC system?
- a) To convert electrical energy into mechanical energy
 - b) To provide rotational motion to machinery
 - c) To control the position and speed of a motor
 - d) To provide feedback to the PLC system
- 9) What is a relay in PLC?
- a) A device that allows signals to be sent from one part of the PLC to another.
 - b) A device that controls the flow of electricity within the PLC.
 - c) A device that converts analog signals to digital signals in the PLC.
 - d) None of the above.
- 10) What is the use of PLC in traffic signal control?
- a) To control the timing of traffic lights
 - b) To monitor the traffic flow
 - c) To detect faults in the system
 - d) All of the above
- 11) What is the purpose of programming a PLC?
- a) To control and automate industrial processes
 - b) To communicate with external devices
 - c) To troubleshoot errors in the system
 - d) To monitor and collect data for analysis
- 12) What is the purpose of a PLC in a garage door application?
- a) To control the opening and closing of the garage door
 - b) To monitor the temperature inside the garage
 - c) To display the time, it takes for the garage door to open and close
 - d) To generate a warning alarm when the garage door is open
- 13) A automation system is related to _____.
- a) Distributed control system
 - b) Supervisory control and data acquisition system
 - c) Distinct control system
 - d) Both a and b
- 14) What is the primary function of an industrial controller?
- a) Data storage
 - b) Data transmission
 - c) Process control
 - d) Data visualization

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four of the following. 16

- a) With the help of block diagram explain the working of PLC.
- b) Explain the types of PLCs. List any six brands of PLCs available in the market.
- c) Describe Power supply of PLC with block diagram.
- d) What are different types proximity switches? Explain any one in detail.
- e) Explain Working of Potentiometer as sensor.

Q.3 Attempt any Two of following. 12

- a) Why different types of I/O modules are required to be interfaced with PLC?
Draw and describe the block diagram of discrete input module of PLC.
- b) What is Seeback effect. Explain working of Thermocouple with suitable diagram.
- c) Define Sensor. List different types of sensors. Explain IR sensor in detail.

Section – II

Q.4 Attempt any Four of the following. 16

- a) Draw symbol of NO & NC type pushbutton. Explain use of Emergency push button in PLC.
- b) What is Solenoid Valve. State different types of it. State one application of Solenoid valve.
- c) Explain use of down Counter instruction in PLC with example.
- d) Define industrial controller. List & explain key features of Industrial Controllers
- e) What is use of comparison instruction in PLC programming? Explain any two comparison instruction in detail.

Q.5 Attempt any Two of following. 12

- a) Explain working of DC motor with block diagram. List specification of it.
- b) List different Methods of Programming a PLC. Draw Ladder diagram for XOR Gate & XNOR gate.
- c) Draw a ladder diagram for two lamps RED & YELLOW having following conditions
 - i) When start button pressed RED & YELLOW lamp will be ON.
 - ii) When stop button pressed RED lamps will be OFF.
 - iii) After 10 second YELLOW lamp will be OFF.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct Answer.

14

- 1) What is the purpose of using a stepper motor in a PLC system?
 - a) To convert electrical energy into mechanical energy
 - b) To provide rotational motion to machinery
 - c) To control the position and speed of a motor
 - d) To provide feedback to the PLC system

- 2) What is a relay in PLC?
 - a) A device that allows signals to be sent from one part of the PLC to another.
 - b) A device that controls the flow of electricity within the PLC.
 - c) A device that converts analog signals to digital signals in the PLC.
 - d) None of the above.

- 3) What is the use of PLC in traffic signal control?
 - a) To control the timing of traffic lights
 - b) To monitor the traffic flow
 - c) To detect faults in the system
 - d) All of the above

- 4) What is the purpose of programming a PLC?
 - a) To control and automate industrial processes
 - b) To communicate with external devices
 - c) To troubleshoot errors in the system
 - d) To monitor and collect data for analysis

- 5) What is the purpose of a PLC in a garage door application?
 - a) To control the opening and closing of the garage door
 - b) To monitor the temperature inside the garage
 - c) To display the time, it takes for the garage door to open and close
 - d) To generate a warning alarm when the garage door is open

- 6) A automation system is related to _____.
 - a) Distributed control system
 - b) Supervisory control and data acquisition system
 - c) Distinct control system
 - d) Both a and b

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four of the following. 16

- a) With the help of block diagram explain the working of PLC.
- b) Explain the types of PLCs. List any six brands of PLCs available in the market.
- c) Describe Power supply of PLC with block diagram.
- d) What are different types proximity switches? Explain any one in detail.
- e) Explain Working of Potentiometer as sensor.

Q.3 Attempt any Two of following. 12

- a) Why different types of I/O modules are required to be interfaced with PLC?
Draw and describe the block diagram of discrete input module of PLC.
- b) What is Seeback effect. Explain working of Thermocouple with suitable diagram.
- c) Define Sensor. List different types of sensors. Explain IR sensor in detail.

Section – II

Q.4 Attempt any Four of the following. 16

- a) Draw symbol of NO & NC type pushbutton. Explain use of Emergency push button in PLC.
- b) What is Solenoid Valve. State different types of it. State one application of Solenoid valve.
- c) Explain use of down Counter instruction in PLC with example.
- d) Define industrial controller. List & explain key features of Industrial Controllers
- e) What is use of comparison instruction in PLC programming? Explain any two comparison instruction in detail.

Q.5 Attempt any Two of following. 12

- a) Explain working of DC motor with block diagram. List specification of it.
- b) List different Methods of Programming a PLC. Draw Ladder diagram for XOR Gate & XNOR gate.
- c) Draw a ladder diagram for two lamps RED & YELLOW having following conditions
 - i) When start button pressed RED & YELLOW lamp will be ON.
 - ii) When stop button pressed RED lamps will be OFF.
 - iii) After 10 second YELLOW lamp will be OFF.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct Answer.

14

- 1) What is the purpose of programming a PLC?
 - a) To control and automate industrial processes
 - b) To communicate with external devices
 - c) To troubleshoot errors in the system
 - d) To monitor and collect data for analysis

- 2) What is the purpose of a PLC in a garage door application?
 - a) To control the opening and closing of the garage door
 - b) To monitor the temperature inside the garage
 - c) To display the time, it takes for the garage door to open and close
 - d) To generate a warning alarm when the garage door is open

- 3) A automation system is related to _____.
 - a) Distributed control system
 - b) Supervisory control and data acquisition system
 - c) Distinct control system
 - d) Both a and b

- 4) What is the primary function of an industrial controller?

a) Data storage	b) Data transmission
c) Process control	d) Data visualization

- 5) What is the function of the input/output (I/O) module in a PLC?
 - a) To provide power to the PLC
 - b) To store the program
 - c) To interface with the input and output devices
 - d) To communicate with other PLCs

- 6) Which criteria should be prioritized when selecting a PLC for a high-speed manufacturing process?
 - a) Communication protocols
 - b) Processing speed of the PLC
 - c) Programming capabilities
 - d) Compatibility with existing systems

- 7) Current flows into the _____.
- a) Input terminal of a sinking DC input module
 - b) Input terminal of a sinking output field device
 - c) Output terminal of a sinking input field device
 - d) All of the above
- 8) Which of the following is not a common specification of a PLC?
- a) Number of inputs and outputs
 - b) Memory capacity
 - c) Processing speed
 - d) Operating system
- 9) Which of the following sensors is used to detect the presence or absence of an object?
- a) Pressure sensor
 - b) Temperature sensor
 - c) Proximity sensor
 - d) Accelerometer
- 10) Which one of the following is a basic component of pneumatic power system?
- a) Air tank
 - b) Compressor
 - c) Valves
 - d) All of the above
- 11) Electrical strain gauge works on the principle of _____.
- a) variation of resistance
 - b) variation of capacitance
 - c) variation of inductance
 - d) variation of area
- 12) What is the purpose of using a stepper motor in a PLC system?
- a) To convert electrical energy into mechanical energy
 - b) To provide rotational motion to machinery
 - c) To control the position and speed of a motor
 - d) To provide feedback to the PLC system
- 13) What is a relay in PLC?
- a) A device that allows signals to be sent from one part of the PLC to another.
 - b) A device that controls the flow of electricity within the PLC.
 - c) A device that converts analog signals to digital signals in the PLC.
 - d) None of the above.
- 14) What is the use of PLC in traffic signal control?
- a) To control the timing of traffic lights
 - b) To monitor the traffic flow
 - c) To detect faults in the system
 - d) All of the above

Seat No.	
-----------------	--

Set	R
------------	----------

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four of the following. 16

- With the help of block diagram explain the working of PLC.
- Explain the types of PLCs. List any six brands of PLCs available in the market.
- Describe Power supply of PLC with block diagram.
- What are different types proximity switches? Explain any one in detail.
- Explain Working of Potentiometer as sensor.

Q.3 Attempt any Two of following. 12

- Why different types of I/O modules are required to be interfaced with PLC? Draw and describe the block diagram of discrete input module of PLC.
- What is Seeback effect. Explain working of Thermocouple with suitable diagram.
- Define Sensor. List different types of sensors. Explain IR sensor in detail.

Section – II

Q.4 Attempt any Four of the following. 16

- Draw symbol of NO & NC type pushbutton. Explain use of Emergency push button in PLC.
- What is Solenoid Valve. State different types of it. State one application of Solenoid valve.
- Explain use of down Counter instruction in PLC with example.
- Define industrial controller. List & explain key features of Industrial Controllers
- What is use of comparison instruction in PLC programming? Explain any two comparison instruction in detail.

Q.5 Attempt any Two of following. 12

- Explain working of DC motor with block diagram. List specification of it.
- List different Methods of Programming a PLC. Draw Ladder diagram for XOR Gate & XNOR gate.
- Draw a ladder diagram for two lamps RED & YELLOW having following conditions
 - When start button pressed RED & YELLOW lamp will be ON.
 - When stop button pressed RED lamps will be OFF.
 - After 10 second YELLOW lamp will be OFF.

Seat No.	
-------------	--

Set	S
-----	---

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose correct Answer.

14

- 1) Which one of the following is a basic component of pneumatic power system?
 - a) Air tank
 - b) Compressor
 - c) Valves
 - d) All of the above
- 2) Electrical strain gauge works on the principle of _____.
 - a) variation of resistance
 - b) variation of capacitance
 - c) variation of inductance
 - d) variation of area
- 3) What is the purpose of using a stepper motor in a PLC system?
 - a) To convert electrical energy into mechanical energy
 - b) To provide rotational motion to machinery
 - c) To control the position and speed of a motor
 - d) To provide feedback to the PLC system
- 4) What is a relay in PLC?
 - a) A device that allows signals to be sent from one part of the PLC to another.
 - b) A device that controls the flow of electricity within the PLC.
 - c) A device that converts analog signals to digital signals in the PLC.
 - d) None of the above.
- 5) What is the use of PLC in traffic signal control?
 - a) To control the timing of traffic lights
 - b) To monitor the traffic flow
 - c) To detect faults in the system
 - d) All of the above
- 6) What is the purpose of programming a PLC?
 - a) To control and automate industrial processes
 - b) To communicate with external devices
 - c) To troubleshoot errors in the system
 - d) To monitor and collect data for analysis

- 7) What is the purpose of a PLC in a garage door application?
- a) To control the opening and closing of the garage door
 - b) To monitor the temperature inside the garage
 - c) To display the time, it takes for the garage door to open and close
 - d) To generate a warning alarm when the garage door is open
- 8) A automation system is related to ____.
- a) Distributed control system
 - b) Supervisory control and data acquisition system
 - c) Distinct control system
 - d) Both a and b
- 9) What is the primary function of an industrial controller?
- a) Data storage
 - b) Data transmission
 - c) Process control
 - d) Data visualization
- 10) What is the function of the input/output (I/O) module in a PLC?
- a) To provide power to the PLC
 - b) To store the program
 - c) To interface with the input and output devices
 - d) To communicate with other PLCs
- 11) Which criteria should be prioritized when selecting a PLC for a high-speed manufacturing process?
- a) Communication protocols
 - b) Processing speed of the PLC
 - c) Programming capabilities
 - d) Compatibility with existing systems
- 12) Current flows into the ____.
- a) Input terminal of a sinking DC input module
 - b) Input terminal of a sinking output field device
 - c) Output terminal of a sinking input field device
 - d) All of the above
- 13) Which of the following is not a common specification of a PLC?
- a) Number of inputs and outputs
 - b) Memory capacity
 - c) Processing speed
 - d) Operating system
- 14) Which of the following sensors is used to detect the presence or absence of an object?
- a) Pressure sensor
 - b) Temperature sensor
 - c) Proximity sensor
 - d) Accelerometer

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
PLC and Industrial Controllers (BTN06707)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

Q.2 Attempt any Four of the following. 16

- With the help of block diagram explain the working of PLC.
- Explain the types of PLCs. List any six brands of PLCs available in the market.
- Describe Power supply of PLC with block diagram.
- What are different types proximity switches? Explain any one in detail.
- Explain Working of Potentiometer as sensor.

Q.3 Attempt any Two of following. 12

- Why different types of I/O modules are required to be interfaced with PLC?
Draw and describe the block diagram of discrete input module of PLC.
- What is Seeback effect. Explain working of Thermocouple with suitable diagram.
- Define Sensor. List different types of sensors. Explain IR sensor in detail.

Section – II

Q.4 Attempt any Four of the following. 16

- Draw symbol of NO & NC type pushbutton. Explain use of Emergency push button in PLC.
- What is Solenoid Valve. State different types of it. State one application of Solenoid valve.
- Explain use of down Counter instruction in PLC with example.
- Define industrial controller. List & explain key features of Industrial Controllers
- What is use of comparison instruction in PLC programming? Explain any two comparison instruction in detail.

Q.5 Attempt any Two of following. 12

- Explain working of DC motor with block diagram. List specification of it.
- List different Methods of Programming a PLC. Draw Ladder diagram for XOR Gate & XNOR gate.
- Draw a ladder diagram for two lamps RED & YELLOW having following conditions
 - When start button pressed RED & YELLOW lamp will be ON.
 - When stop button pressed RED lamps will be OFF.
 - After 10 second YELLOW lamp will be OFF.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Actual radio coverage of a cell is called _____
 - a) Fingerprint
 - b) Footprint
 - c) Imprint
 - d) Matrix
- 2) What is the drawback of dynamic channel assignment?
 - a) Decrease channel utilization
 - b) Increase probability of blocked call
 - c) Cross talk
 - d) Increase storage and computational load on system
- 3) What is breathing cell effect?
 - a) Fixed coverage region
 - b) Dynamic and time varying coverage region
 - c) Large coverage region
 - d) Very small coverage region
- 4) Which of the following technology distributes the coverage of the cell and extends the cell boundary to hard-to-reach places?
 - a) Cell splitting
 - b) Scattering
 - c) Sectoring
 - d) Micro cell zone concept
- 5) Propagation model that characterizes rapid fluctuation is called _____
 - a) Hata model
 - b) Fading model
 - c) Large scale propagation model
 - d) Okumura model
- 6) Apparent shift in frequency in multipath wave is caused due to relative motion between _____
 - a) Base station and MSC
 - b) Mobile and surrounding objects
 - c) Mobile and MSC
 - d) Mobile and base station

- 7) The bandwidth of FDMA channel is _____
- a) Wide
 - b) Narrow
 - c) Large
 - d) Zero
- 8) Why is a cyclic prefix required in an OFDMA?
- a) To ensure symbol time is an integer number
 - b) To help overcome multipath and ISI
 - c) To maintain orthogonality
 - d) To make OFDMA scalable
- 9) Global Positioning System uses _____
- a) CDMA
 - b) TDMA
 - c) SDMA
 - d) FDMA
- 10) Which of the following is a CDMA standard of second generation network?
- a) IS-95
 - b) IS-136
 - c) ETACS
 - d) EDGE
- 11) What type of handovers is supported by LTE?
- a) Hard handover only
 - b) Soft handover only
 - c) Hard and soft handover
 - d) Hard, soft and softest handover
- 12) What is the average uploading speed of 4G LTE network?
- a) 1-3 Gbps
 - b) 2-5 Gbps
 - c) 1-3 Mbps
 - d) 2-5 Mbps
- 13) Which of the following are ways in which a subscriber can be identified in 5G?
- a) Permanent Identity
 - b) Concealed Identity
 - c) Temporary Identity
 - d) Hidden Identity
- 14) Which of the following characteristics best describe 4G Internet?
- a) High speed, low latency, and high capacity
 - b) Low speed, high latency, and low capacity
 - c) High speed, high latency, and low capacity
 - d) Low speed, low latency, and low capacity

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Handoff? Explain handoff mechanism.
 - b) Explain Cell Splitting & its types. Also comment on effect of Cell Splitting.
 - c) Explain effects due to multipath time delay spread.
 - d) Explain in detail TDMA.
 - e) Explain factors influencing small scale fading.

- Q.3 Attempt any Two** **12**
- a) Explain Umbrella Cell approach & cell dragging problems in handoff considerations.
 - b) Explain practical link budget design equation using path-loss model in detail.
 - c) Give comparison between FDMA, TDMA, CDMA & SDMA.

Section – II

- Q.4 Attempt any Four** **16**
- a) Explain call origination procedure in GSM.
 - b) Explain in short different GSM channels.
 - c) Explain Mobility & Radio Resource management in IS 95.
 - d) What are the key aspects of 4G technology?
 - e) Give classification of signaling relays.

- Q.5 Attempt any Two** **12**
- a) Draw & explain GSM network architecture.
 - b) Write detailed note on IMT 2020 & its capabilities.
 - c) Explain LTE architecture in detail.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Why is a cyclic prefix required in an OFDMA?
 - a) To ensure symbol time is an integer number
 - b) To help overcome multipath and ISI
 - c) To maintain orthogonality
 - d) To make OFDMA scalable
- 2) Global Positioning System uses _____
 - a) CDMA
 - b) TDMA
 - c) SDMA
 - d) FDMA
- 3) Which of the following is a CDMA standard of second generation network?
 - a) IS-95
 - b) IS-136
 - c) ETACS
 - d) EDGE
- 4) What type of handovers is supported by LTE?
 - a) Hard handover only
 - b) Soft handover only
 - c) Hard and soft handover
 - d) Hard, soft and softest handover
- 5) What is the average uploading speed of 4G LTE network?
 - a) 1-3 Gbps
 - b) 2-5 Gbps
 - c) 1-3 Mbps
 - d) 2-5 Mbps
- 6) Which of the following are ways in which a subscriber can be identified in 5G?
 - a) Permanent Identity
 - b) Concealed Identity
 - c) Temporary Identity
 - d) Hidden Identity
- 7) Which of the following characteristics best describe 4G Internet?
 - a) High speed, low latency, and high capacity
 - b) Low speed, high latency, and low capacity
 - c) High speed, high latency, and low capacity
 - d) Low speed, low latency, and low capacity

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Handoff? Explain handoff mechanism.
 - b) Explain Cell Splitting & its types. Also comment on effect of Cell Splitting.
 - c) Explain effects due to multipath time delay spread.
 - d) Explain in detail TDMA.
 - e) Explain factors influencing small scale fading.

- Q.3 Attempt any Two** **12**
- a) Explain Umbrella Cell approach & cell dragging problems in handoff considerations.
 - b) Explain practical link budget design equation using path-loss model in detail.
 - c) Give comparison between FDMA, TDMA, CDMA & SDMA.

Section – II

- Q.4 Attempt any Four** **16**
- a) Explain call origination procedure in GSM.
 - b) Explain in short different GSM channels.
 - c) Explain Mobility & Radio Resource management in IS 95.
 - d) What are the key aspects of 4G technology?
 - e) Give classification of signaling relays.

- Q.5 Attempt any Two** **12**
- a) Draw & explain GSM network architecture.
 - b) Write detailed note on IMT 2020 & its capabilities.
 - c) Explain LTE architecture in detail.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What type of handovers is supported by LTE?
 - a) Hard handover only
 - b) Soft handover only
 - c) Hard and soft handover
 - d) Hard, soft and softest handover
- 2) What is the average uploading speed of 4G LTE network?

a) 1-3 Gbps	b) 2-5 Gbps
c) 1-3 Mbps	d) 2-5 Mbps
- 3) Which of the following are ways in which a subscriber can be identified in 5G?

a) Permanent Identity	b) Concealed Identity
c) Temporary Identity	d) Hidden Identity
- 4) Which of the following characteristics best describe 4G Internet?
 - a) High speed, low latency, and high capacity
 - b) Low speed, high latency, and low capacity
 - c) High speed, high latency, and low capacity
 - d) Low speed, low latency, and low capacity
- 5) Actual radio coverage of a cell is called _____.

a) Fingerprint	b) Footprint
c) Imprint	d) Matrix
- 6) What is the drawback of dynamic channel assignment?
 - a) Decrease channel utilization
 - b) Increase probability of blocked call
 - c) Cross talk
 - d) Increase storage and computational load on system
- 7) What is breathing cell effect?
 - a) Fixed coverage region
 - b) Dynamic and time varying coverage region
 - c) Large coverage region
 - d) Very small coverage region

- 8) Which of the following technology distributes the coverage of the cell and extends the cell boundary to hard-to-reach places?
- a) Cell splitting
 - b) Scattering
 - c) Sectoring
 - d) Micro cell zone concept
- 9) Propagation model that characterizes rapid fluctuation is called _____
- a) Hata model
 - b) Fading model
 - c) Large scale propagation model
 - d) Okumura model
- 10) Apparent shift in frequency in multipath wave is caused due to relative motion between _____
- a) Base station and MSC
 - b) Mobile and surrounding objects
 - c) Mobile and MSC
 - d) Mobile and base station
- 11) The bandwidth of FDMA channel is _____
- a) Wide
 - b) Narrow
 - c) Large
 - d) Zero
- 12) Why is a cyclic prefix required in an OFDMA?
- a) To ensure symbol time is an integer number
 - b) To help overcome multipath and ISI
 - c) To maintain orthogonality
 - d) To make OFDMA scalable
- 13) Global Positioning System uses _____
- a) CDMA
 - b) TDMA
 - c) SDMA
 - d) FDMA
- 14) Which of the following is a CDMA standard of second generation network?
- a) IS-95
 - b) IS-136
 - c) ETACS
 - d) EDGE

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Handoff? Explain handoff mechanism.
 - b) Explain Cell Splitting & its types. Also comment on effect of Cell Splitting.
 - c) Explain effects due to multipath time delay spread.
 - d) Explain in detail TDMA.
 - e) Explain factors influencing small scale fading.
- Q.3 Attempt any Two** **12**
- a) Explain Umbrella Cell approach & cell dragging problems in handoff considerations.
 - b) Explain practical link budget design equation using path-loss model in detail.
 - c) Give comparison between FDMA, TDMA, CDMA & SDMA.

Section – II

- Q.4 Attempt any Four** **16**
- a) Explain call origination procedure in GSM.
 - b) Explain in short different GSM channels.
 - c) Explain Mobility & Radio Resource management in IS 95.
 - d) What are the key aspects of 4G technology?
 - e) Give classification of signaling relays.
- Q.5 Attempt any Two** **12**
- a) Draw & explain GSM network architecture.
 - b) Write detailed note on IMT 2020 & its capabilities.
 - c) Explain LTE architecture in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Apparent shift in frequency in multipath wave is caused due to relative motion between _____
 - a) Base station and MSC
 - b) Mobile and surrounding objects
 - c) Mobile and MSC
 - d) Mobile and base station
- 2) The bandwidth of FDMA channel is _____
 - a) Wide
 - b) Narrow
 - c) Large
 - d) Zero
- 3) Why is a cyclic prefix required in an OFDMA?
 - a) To ensure symbol time is an integer number
 - b) To help overcome multipath and ISI
 - c) To maintain orthogonality
 - d) To make OFDMA scalable
- 4) Global Positioning System uses _____
 - a) CDMA
 - b) TDMA
 - c) SDMA
 - d) FDMA
- 5) Which of the following is a CDMA standard of second generation network?
 - a) IS-95
 - b) IS-136
 - c) ETACS
 - d) EDGE
- 6) What type of handovers is supported by LTE?
 - a) Hard handover only
 - b) Soft handover only
 - c) Hard and soft handover
 - d) Hard, soft and softest handover
- 7) What is the average uploading speed of 4G LTE network?
 - a) 1-3 Gbps
 - b) 2-5 Gbps
 - c) 1-3 Mbps
 - d) 2-5 Mbps

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Mobile Communication (BTN06708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any Four** **16**
- a) What is Handoff? Explain handoff mechanism.
 - b) Explain Cell Splitting & its types. Also comment on effect of Cell Splitting.
 - c) Explain effects due to multipath time delay spread.
 - d) Explain in detail TDMA.
 - e) Explain factors influencing small scale fading.

- Q.3 Attempt any Two** **12**
- a) Explain Umbrella Cell approach & cell dragging problems in handoff considerations.
 - b) Explain practical link budget design equation using path-loss model in detail.
 - c) Give comparison between FDMA, TDMA, CDMA & SDMA.

Section – II

- Q.4 Attempt any Four** **16**
- a) Explain call origination procedure in GSM.
 - b) Explain in short different GSM channels.
 - c) Explain Mobility & Radio Resource management in IS 95.
 - d) What are the key aspects of 4G technology?
 - e) Give classification of signaling relays.

- Q.5 Attempt any Two** **12**
- a) Draw & explain GSM network architecture.
 - b) Write detailed note on IMT 2020 & its capabilities.
 - c) Explain LTE architecture in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The main tasks of an AI agent are _____.
 - a) Input and Output
 - b) Moment and Humanly Actions
 - c) Perceiving, thinking, and acting on the environment
 - d) None of the above
- 2) The main function of problem-solving agent is to _____.
 - a) Solve the given problem and reach the goal
 - b) Find out which sequence of action will get it to the goal state.
 - c) Both a & b
 - d) None of these
- 3) The inference engine works on _____.

a) Forward Chaining	b) Backward Chaining
c) Both A and B	d) None of these
- 4) Web Crawler is an example of _____.

a) Intelligent Agent	b) Problem-solving Agent
c) Simple reflex Agent	d) Model-based Agent
- 5) The component of an Expert system is _____.

a) Knowledge Base	b) Inference Engine
c) User Interface	d) All of these
- 6) Which of the given statement is true for Conditional Probability?
 - a) Conditional Probability gives 100% accurate results.
 - b) Conditional Probability can be applied to a single event.
 - c) Conditional Probability has no effect or relevance on independent events.
 - d) None of the above.
- 7) The probabilistic reasoning depends upon _____.

a) Estimation	b) Observations
c) Likelihood	d) All of these

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- a) State & Explain different types of Intelligent Agents.
- b) Explain Relaxation Labelling Methods in brief.
- c) Explain Man Vs Computers in brief.
- d) Explain in brief Computer Vision Representation.
- e) Explain Model based object Recognition in brief.

Q.3 Solve any two. 12

- a) Explain the major components of Intelligent System.
- b) Explain the Features of an Expert System and Existing expert systems in brief.
- c) Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four 16

- a) Explain the Language Models of NLP in brief.
- b) Explain the Information Retrieval and Information Extraction in short.
- c) Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- d) Discuss the Robotic Perception in brief.
- e) Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. 12

- a) Explain the Speech Recognition and Machine Translation in NLP in detail.
- b) Explain the Robotic Software Architectures in brief.
- c) Discuss the Active Reinforcement in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Who is known as the -Father of AI"?

a) Fisher Ada	b) Alan Turing
c) John McCarthy	d) Allen Newell
- 2) Which term describes the common-sense of the judgmental part of problem-solving?

a) Values-based	b) Critical
c) Analytical	d) Heuristic
- 3) Artificial Intelligence is about _____.
 - a) Playing a game on Computer
 - b) Making a machine Intelligent
 - c) Programming on Machine with your own Intelligence
 - d) Putting your intelligence in Machine.
- 4) An AI agent perceives and acts upon the environment using _____.

a) Sensors	b) Perceiver
c) Actuators	d) Both a and c
- 5) Which AI technique enables the computers to understand the associations and relationships between objects and events?

a) Heuristic Processing	b) Cognitive Science
c) Relative Symbolism	d) Pattern Matching
- 6) A technique that was developed to determine whether a machine could or could not demonstrate the artificial intelligence known as the _____.

a) Boolean Algebra	b) Turing Test
c) Logarithm	d) Algorithm
- 7) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the _____.

a) Mobile	b) Non-Servo
c) Open Loop	d) Intelligent

- 8) The main tasks of an AI agent are _____.
a) Input and Output
b) Moment and Humanly Actions
c) Perceiving, thinking, and acting on the environment
d) None of the above
- 9) The main function of problem-solving agent is to _____.
a) Solve the given problem and reach the goal
b) Find out which sequence of action will get it to the goal state.
c) Both a & b
d) None of these
- 10) The inference engine works on _____.
a) Forward Chaining b) Backward Chaining
c) Both A and B d) None of these
- 11) Web Crawler is an example of _____.
a) Intelligent Agent b) Problem-solving Agent
c) Simple reflex Agent d) Model-based Agent
- 12) The component of an Expert system is _____.
a) Knowledge Base b) Inference Engine
c) User Interface d) All of these
- 13) Which of the given statement is true for Conditional Probability?
a) Conditional Probability gives 100% accurate results.
b) Conditional Probability can be applied to a single event.
c) Conditional Probability has no effect or relevance on independent events.
d) None of the above.
- 14) The probabilistic reasoning depends upon _____.
a) Estimation b) Observations
c) Likelihood d) All of these

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- a) State & Explain different types of Intelligent Agents.
- b) Explain Relaxation Labelling Methods in brief.
- c) Explain Man Vs Computers in brief.
- d) Explain in brief Computer Vision Representation.
- e) Explain Model based object Recognition in brief.

Q.3 Solve any two. 12

- a) Explain the major components of Intelligent System.
- b) Explain the Features of an Expert System and Existing expert systems in brief.
- c) Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four 16

- a) Explain the Language Models of NLP in brief.
- b) Explain the Information Retrieval and Information Extraction in short.
- c) Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- d) Discuss the Robotic Perception in brief.
- e) Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. 12

- a) Explain the Speech Recognition and Machine Translation in NLP in detail.
- b) Explain the Robotic Software Architectures in brief.
- c) Discuss the Active Reinforcement in detail.

- 8) Web Crawler is an example of _____.
a) Intelligent Agent b) Problem-solving Agent
c) Simple reflex Agent d) Model-based Agent
- 9) The component of an Expert system is _____.
a) Knowledge Base b) Inference Engine
c) User Interface d) All of these
- 10) Which of the given statement is true for Conditional Probability?
a) Conditional Probability gives 100% accurate results.
b) Conditional Probability can be applied to a single event.
c) Conditional Probability has no effect or relevance on independent events.
d) None of the above.
- 11) The probabilistic reasoning depends upon _____.
a) Estimation b) Observations
c) Likelihood d) All of these
- 12) Who is known as the -Father of AI"?.
a) Fisher Ada b) Alan Turing
c) John McCarthy d) Allen Newell
- 13) Which term describes the common-sense of the judgmental part of problem-solving?
a) Values-based b) Critical
c) Analytical d) Heuristic
- 14) Artificial Intelligence is about _____.
a) Playing a game on Computer
b) Making a machine Intelligent
c) Programming on Machine with your own Intelligence
d) Putting your intelligence in Machine.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- State & Explain different types of Intelligent Agents.
- Explain Relaxation Labelling Methods in brief.
- Explain Man Vs Computers in brief.
- Explain in brief Computer Vision Representation.
- Explain Model based object Recognition in brief.

Q.3 Solve any two. 12

- Explain the major components of Intelligent System.
- Explain the Features of an Expert System and Existing expert systems in brief.
- Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four 16

- Explain the Language Models of NLP in brief.
- Explain the Information Retrieval and Information Extraction in short.
- Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- Discuss the Robotic Perception in brief.
- Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. 12

- Explain the Speech Recognition and Machine Translation in NLP in detail.
- Explain the Robotic Software Architectures in brief.
- Discuss the Active Reinforcement in detail.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page No 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the given statement is true for Conditional Probability?
 - a) Conditional Probability gives 100% accurate results.
 - b) Conditional Probability can be applied to a single event.
 - c) Conditional Probability has no effect or relevance on independent events.
 - d) None of the above.
- 2) The probabilistic reasoning depends upon _____.
 - a) Estimation
 - b) Observations
 - c) Likelihood
 - d) All of these
- 3) Who is known as the -Father of AI"?
 - a) Fisher Ada
 - b) Alan Turing
 - c) John McCarthy
 - d) Allen Newell
- 4) Which term describes the common-sense of the judgmental part of problem-solving?
 - a) Values-based
 - b) Critical
 - c) Analytical
 - d) Heuristic
- 5) Artificial Intelligence is about _____.
 - a) Playing a game on Computer
 - b) Making a machine Intelligent
 - c) Programming on Machine with your own Intelligence
 - d) Putting your intelligence in Machine.
- 6) An AI agent perceives and acts upon the environment using _____.
 - a) Sensors
 - b) Perceiver
 - c) Actuators
 - d) Both a and c
- 7) Which AI technique enables the computers to understand the associations and relationships between objects and events?
 - a) Heuristic Processing
 - b) Cognitive Science
 - c) Relative Symbolism
 - d) Pattern Matching

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
AI Applications (BTN06710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- a) State & Explain different types of Intelligent Agents.
- b) Explain Relaxation Labelling Methods in brief.
- c) Explain Man Vs Computers in brief.
- d) Explain in brief Computer Vision Representation.
- e) Explain Model based object Recognition in brief.

Q.3 Solve any two. 12

- a) Explain the major components of Intelligent System.
- b) Explain the Features of an Expert System and Existing expert systems in brief.
- c) Explain the Basic architecture of an Expert system

Section – II

Q.4 Solve any four 16

- a) Explain the Language Models of NLP in brief.
- b) Explain the Information Retrieval and Information Extraction in short.
- c) Explain the Structure Grammars, Syntactic Analysis (Parsing) in short.
- d) Discuss the Robotic Perception in brief.
- e) Explain the Passive Reinforcement Learning in brief.

Q.5 Solve any two. 12

- a) Explain the Speech Recognition and Machine Translation in NLP in detail.
- b) Explain the Robotic Software Architectures in brief.
- c) Discuss the Active Reinforcement in detail.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

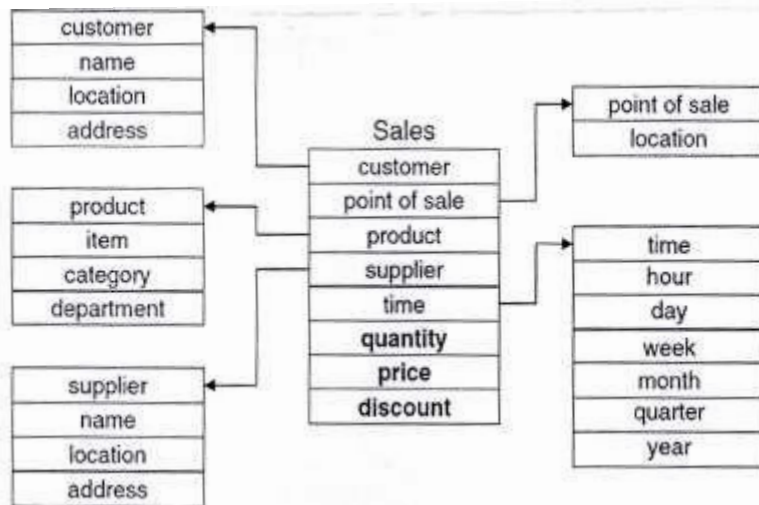
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is not a component of Relational Marketing?
 - a) Organization
 - b) BI and Data Mining
 - c) Technology
 - d) Fund
- 2) What is Six Sigma?
 - a) a letter in the Greek alphabet that statisticians use to measure process variability
 - b) a methodology aimed at reducing the number of defects in a business process
 - c) a methodology aimed at reducing the amount of variability in a business process
 - d) a methodology aimed at measuring the amount of variability in a business process
- 3) Which of the following is not a stage in "Lifetime of a Customer"
 - a) Acquisition
 - b) Cross/Up Selling
 - c) Bargaining
 - d) Retention
- 4) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?
 - a) Business Intelligence
 - b) Data Visualization
 - c) Data Analysis
 - d) Report Generation
- 5) Which of the following is False for Supply Chain
 - a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 6) Which of the following is not an optimization model?
 - a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 7) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
 - a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

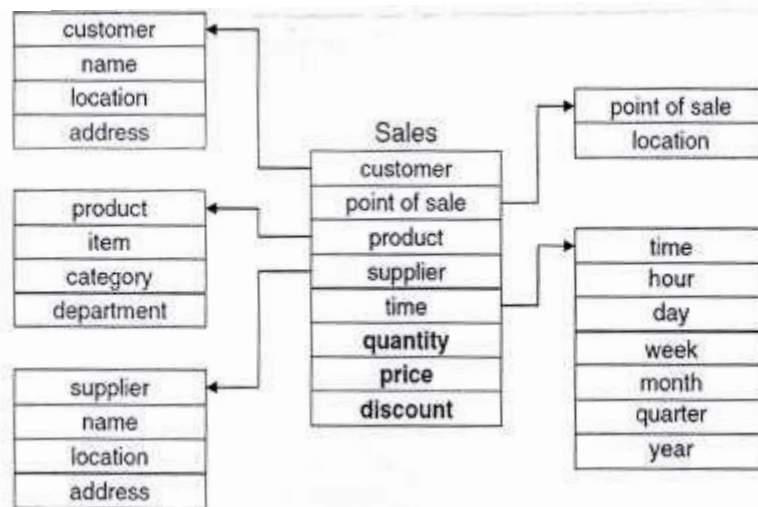
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?
 - a) Business Intelligence
 - b) Data Visualization
 - c) Data Analysis
 - d) Report Generation
- 2) Which of the following is False for Supply Chain
 - a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 3) Which of the following is not an optimization model?
 - a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 4) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
 - a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models
- 5)
 - i) A decision support system helps in decision making but does not necessarily give a decision itself.
 - ii) decision support system is a computer-based application that collects organizes and analyses business data to facilitate quality business decision making for management, operations, and planning.
 - a) only i) is correct.
 - b) only ii) is correct
 - c) both are correct.
 - d) both are wrong.
- 6) Decision support systems are essential for _____.
 - a) Day-to-day operation of an organization
 - b) Providing statutory information.
 - c) Top level strategic decision making.
 - d) Ensuring that organizations are profitable.
- 7) Full form of OLAP:
 - a) Online analytical process
 - b) Online analog process
 - c) Online anal process
 - d) Online analogy process

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

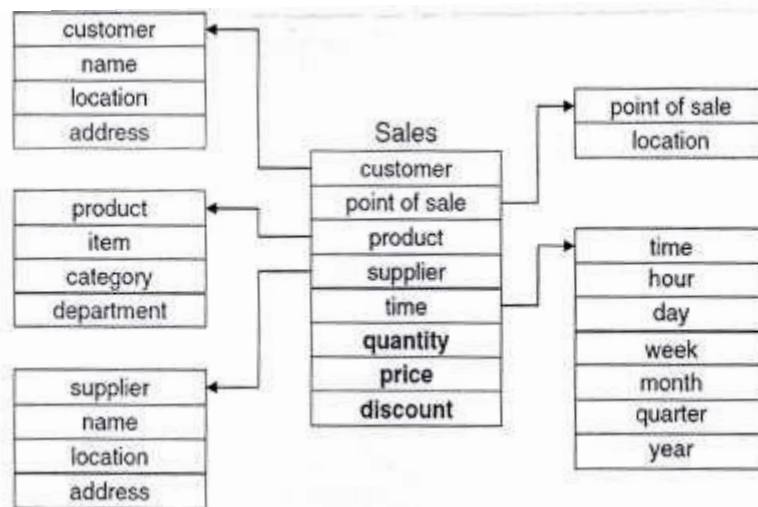
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is a broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions.

a) Data Mart	b) Data mining
c) Business intelligence	d) Artificial intelligence
- 2) A _____ can be considered as a functional or departmental data warehouse of a smaller size and a more specific type than the overall company data warehouse.

a) Warehouse	b) Database
c) Data mart	d) Data Table
- 3) Which of the following is not a component of Relational Marketing?

a) Organization	b) BI and Data Mining
c) Technology	d) Fund
- 4) What is Six Sigma?

a) a letter in the Greek alphabet that statisticians use to measure process variability	b) a methodology aimed at reducing the number of defects in a business process
c) a methodology aimed at reducing the amount of variability in a business process	d) a methodology aimed at measuring the amount of variability in a business process
- 5) Which of the following is not a stage in "Lifetime of a Customer"

a) Acquisition	b) Cross/Up Selling
c) Bargaining	d) Retention
- 6) Which term refers to the process of presenting data in a visual format to facilitate understanding and decision-making?

a) Business Intelligence	b) Data Visualization
c) Data Analysis	d) Report Generation

- 7) Which of the following is False for Supply Chain
- a) It is network of connected and interdependent organizational units
 - b) Strong Coordination is required
 - c) It improves flow of materials if it is effective
 - d) Suppliers are given priority
- 8) Which of the following is not an optimization model?
- a) Extra Capacity
 - b) Maximum Fixed Cost
 - c) Backlogging
 - d) Multiple Plants
- 9) Which type of models are commonly used for logistics planning to determine the most cost-effective distribution routes and schedules?
- a) Descriptive models
 - b) Predictive models
 - c) Optimization models
 - d) Diagnostic models
- 10) i) A decision support system helps in decision making but does not necessarily give a decision itself.
ii) decision support system is a computer-based application that collects organizes and analyses business data to facilitate quality business decision making for management, operations, and planning.
- a) only i) is correct.
 - b) only ii) is correct
 - c) both are correct.
 - d) both are wrong.
- 11) Decision support systems are essential for _____.
- a) Day-to-day operation of an organization
 - b) Providing statutory information.
 - c) Top level strategic decision making.
 - d) Ensuring that organizations are profitable.
- 12) Full form of OLAP:
- a) Online analytical process
 - b) Online analog process
 - c) Online anal process
 - d) Online analogy process
- 13) _____ is a system where operations like data extraction, transformation and loading operations are executed
- a) Data staging
 - b) Data integration
 - c) ETL
 - d) Data mart
- 14) _____ is the outcome of extraction and processing activities on data.
- a) Knowledge
 - b) Information
 - c) Data
 - d) Raw Data

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Science- Business Intelligence (BTN06713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

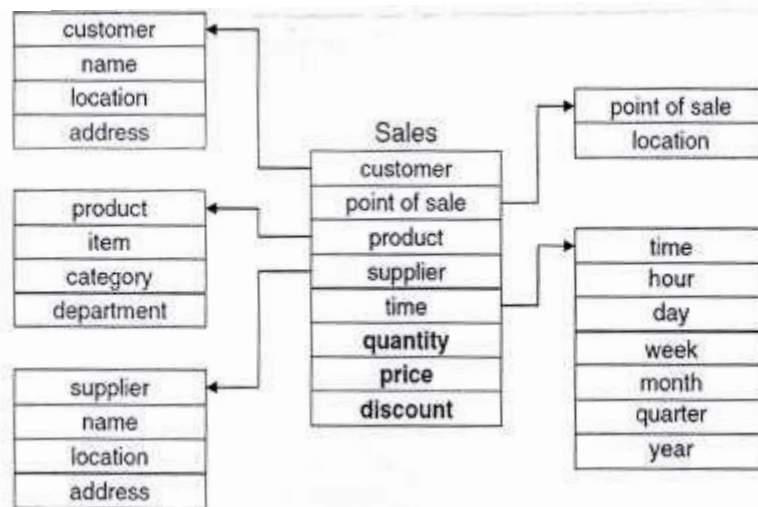
- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four.

16

- What is decision support system (DSS)? Explain representation of DSS in brief.
- What is data mining? List the real life application of data mining.
- Explain importance of effective & timely decision.
- What is ETL? Explain the process of extraction, transformation and loading of data in Data warehouse.
- What are dimension tables? What are Fact Tables? What is the schema in the following diagram? Identify the fact tables and dimension tables in this schema.



Q.3 Attempt Any Two.

12

- Explain the role of mathematical model in business intelligence.
- What is system? Explain a closed cycle marketing system with feedback effects.
- Explain the process of data mining with suitable diagram.

Section – II

Q.4 Attempt Any Four.

16

- What is a performance measurement system? How does it work?
- What is relational marketing? Describe the main stages during the customer lifetime with suitable diagram.
- Explain the concept of supply chain optimization and its significance in logistics.
- Describe any 4 types of charts used for visualization in BI.
- Describe the term market basket analysis in context to relational marketing.

Q.5 Attempt Any Two.

- a) What is Salesforce management? Elaborate decision processes in Salesforce management.
- b) Describe tactical planning and extra capacity in context to optimization models for logistic planning.
- c) What is meant by Business Performance Management (BPM)? List and briefly describe the four phases of the business performance management cycle.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
 - a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 2) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
 - a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability
- 3) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
 - a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 4) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
 - a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 5) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
 - a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency
- 6) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
 - a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance

- 7) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
- a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate
- 8) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
- a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 9) What is the primary objective of Detection in cloud security?
- a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 10) In cloud security, Infrastructure Protection focuses on:
- a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities
- 11) What does Foundations address within the AWS Well-Architected Framework for Reliability?
- a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 12) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?
- a) Foundations
 - b) Workload Architecture
 - c) Change Management
 - d) Failure Management
- 13) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
- a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 14) What is the primary goal of performance efficiency in cloud financial management?
- a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. 12

- a) Describe the general architecture of AWS.
- b) What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- c) Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- d) What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. 16

- a) Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- b) How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- c) What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. 12

- a) Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- b) Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- c) What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- d) Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
 - a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 2) What is the primary objective of Detection in cloud security?
 - a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 3) In cloud security, Infrastructure Protection focuses on:
 - a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities
- 4) What does Foundations address within the AWS Well-Architected Framework for Reliability?
 - a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 5) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?

a) Foundations	b) Workload Architecture
c) Change Management	d) Failure Management

- 6) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
- a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 7) What is the primary goal of performance efficiency in cloud financial management?
- a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in
- 8) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
- a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 9) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
- a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability
- 10) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
- a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 11) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
- a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 12) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
- a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency
- 13) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
- a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance
- 14) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
- a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. 12

- Describe the general architecture of AWS.
- What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. 16

- Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. 12

- Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
-------------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What does Foundations address within the AWS Well-Architected Framework for Reliability?
 - a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 2) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?
 - a) Foundations
 - b) Workload Architecture
 - c) Change Management
 - d) Failure Management
- 3) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
 - a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 4) What is the primary goal of performance efficiency in cloud financial management?
 - a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in
- 5) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
 - a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 6) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
 - a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability

- 7) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
- a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 8) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
- a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 9) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
- a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency
- 10) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
- a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance
- 11) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
- a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate
- 12) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
- a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 13) What is the primary objective of Detection in cloud security?
- a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 14) In cloud security, Infrastructure Protection focuses on:
- a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. 12

- a) Describe the general architecture of AWS.
- b) What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- c) Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- d) What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. 16

- a) Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- b) How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- c) What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. 12

- a) Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- b) Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- c) What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- d) Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the primary goal of Cost Optimization in the AWS Well-Architected Framework?
 - a) Achieving the highest performance possible
 - b) Minimizing costs without considering performance
 - c) Reducing complexity at all costs
 - d) Reducing costs while maintaining or improving performance
- 2) Which pillar of the AWS Well-Architected Framework emphasizes the importance of creating a well-structured and accountable team to manage cloud resources effectively?
 - a) Operational Excellence
 - b) Organization
 - c) Prepare
 - d) Operate
- 3) In the AWS Well-Architected Framework, the Evolve pillar is focused on:
 - a) Preparing for cloud migration
 - b) Continuous improvement and innovation
 - c) Compliance and governance
 - d) Initial setup and configuration
- 4) What is the primary objective of Detection in cloud security?
 - a) Preventing all security incidents
 - b) Identifying security threats and vulnerabilities
 - c) Managing access to cloud resources
 - d) Protecting data at rest
- 5) In cloud security, Infrastructure Protection focuses on:
 - a) Managing user access
 - b) Protecting the physical data centers
 - c) Detecting and responding to security incidents
 - d) Protecting the cloud infrastructure from attacks and vulnerabilities

- 6) What does Foundations address within the AWS Well-Architected Framework for Reliability?
- a) Building the architectural base for workloads
 - b) Managing changes to the workload
 - c) Monitoring workload performance
 - d) Handling operational issues
- 7) What aspect of Reliability in the AWS Well-Architected Framework focuses on maintaining system stability during changes or updates?
- a) Foundations
 - b) Workload Architecture
 - c) Change Management
 - d) Failure Management
- 8) In the context of the AWS Well-Architected Framework, what is the primary objective of Workload Architecture for ensuring Reliability?
- a) Defining an architectural blueprint for workloads
 - b) Managing changes to the workload
 - c) Assessing system failures
 - d) Addressing performance bottlenecks
- 9) What is the primary goal of performance efficiency in cloud financial management?
- a) Minimizing upfront costs
 - b) Maximizing resource utilization
 - c) Reducing security risks
 - d) Enhancing vendor lock-in
- 10) When considering AWS cost optimization, what is the process of choosing the most cost-effective pricing model for a service?
- a) Cost forecasting
 - b) Cost allocation
 - c) Cost analysis
 - d) Cost optimization
- 11) What factor should be considered when selecting an AWS region for hosting data that must comply with specific regulatory requirements?
- a) Network latency
 - b) Cost optimization
 - c) Data sovereignty
 - d) Scalability
- 12) Which AWS service enables the automatic scaling of compute capacity based on traffic and demand?
- a) Amazon CloudFront
 - b) AWS Lambda
 - c) Amazon Auto Scaling
 - d) Amazon Route 53
- 13) What is the primary objective of the Performance Efficiency pillar in the AWS Well-Architected Framework?
- a) Minimizing costs
 - b) Ensuring high availability
 - c) Achieving optimal system performance
 - d) Maximizing security
- 14) Which AWS Well-Architected Framework pillar focuses on the ability to recover from infrastructure or service failures and dynamically scale to meet demand?
- a) Security
 - b) Cost Optimization
 - c) Reliability
 - d) Performance Efficiency

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
IOT- Architecting IOT Solutions (BTN06715)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any THREE. 12

- Describe the general architecture of AWS.
- What are the best practices for achieving Security in a cloud architecture according to the AWS Well-Architected Framework?
- Explain the key design principles associated with Operational Excellence in the AWS Well-Architected Framework.
- What are some key design principles that AWS follows in its framework?

Q.3 Attempt any TWO. 16

- Discuss the fundamental components of the AWS architecture, emphasizing their roles and interactions in a typical cloud environment.
- How can the AWS Well-Architected Framework assist organizations in balancing the trade-offs between different pillars, such as security versus cost optimization?
- What are some common challenges that organizations may face when striving for Operational Excellence in cloud operations, and how can they overcome these challenges?

Section – II

Q.4 Attempt any THREE. 12

- Describe the key strategies and measures for protecting the infrastructure in a cloud environment. What are some common infrastructure protection techniques?
- Explain how workload architecture plays a crucial role in achieving reliability in a cloud environment. What are some architectural best practices?
- What is the significance of Identity and Access Management (IAM) in cloud security, and how does it contribute to a secure cloud environment?
- Explain the process of resource selection in achieving Performance Efficiency within the cloud. What factors should organizations consider when selecting resources for their workloads?

Q.5 Attempt any TWO.

- a) Share best practices for practicing cloud financial management and maintaining a culture of expenditure and usage awareness within an organization's cloud operations.
- b) Provide real-world examples of organizations that have successfully achieved high reliability in their cloud-based systems. What strategies and practices did they implement to achieve this?
- c) How can organizations leverage security monitoring and auditing tools to enhance their cloud security posture and detect potential threats?

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) _____ for monitoring of stations, tracks and passengers.
 - a) Train Tracking
 - b) Train signaling
 - c) Train surveillance
 - d) Train Monitoring
- 2) The reception signal is _____.
 - a) outer signal only
 - b) starter only
 - c) neither (outer signal) nor (starter)
 - d) both (outer signal) and (starter)
- 3) The stations which do not have any signal are known as
 - a) A-class stations
 - b) B-class stations
 - c) Crossing stations
 - d) Terminal stations
- 4) UTS (Unreserved Ticketing System) is a mobile app developed by
 - a) IRCTC
 - b) CRIS
 - c) C-DAC
 - d) None of these
- 5) How many zones are there in Indian Railways?
 - a) 16
 - b) 22
 - c) 20
 - d) 18
- 6) What is the width of Broad Gauge Railway line in India?
 - a) 2 m
 - b) 1.67 m
 - c) 1.32 m
 - d) 1 m
- 7) The safety in Railway in India is looked after by _____.
 - a) Ministry of Railways
 - b) Commission of Railway Safety
 - c) Railway Board
 - d) Headquarter Office
- 8) Which is the fastest train in India 2020?
 - a) Duronto express
 - b) Vande Bharat Express
 - c) Shatabdi express
 - d) Tejas Express

- 9) Intermediate Block Signaling using MSDAC system consists of the following component:
- a) Axle Detectors
 - b) Electronics Field Units
 - c) Central Evaluator
 - d) All of the above
- 10) In railways, the disc signals are provided for the purpose of _____.
a) dead slow movement b) indicating busy platform
c) Shunting d) possible danger ahead
- 11) Shunting signals are known as _____.
a) Routing signals b) Starter signals
c) Ground signals d) Warner signals
- 12) IT tools and business systems in IR are _____.
a) Mobile Ticketing b) Web Ticketing
c) Kiosk-based Ticketing d) All of above
- 13) What is the full form of IRCTC?
a) Indian Railway Catering and Tourism Corporation
b) Indian Railway Corporation and Tourism Corporation
c) Indian Railway Catering and Tourist Corporation
d) Indian Railway Catering and Tourism Council
- 14) In railways the signal that also acts as a routing signal is _____.
a) home signal b) advance starter signal
c) outer signal d) starter signal

Seat No.	
-----------------	--

Set P

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four** **16**
- a) What is railway signaling system?
 - b) Explain Introduction of IOT in Indian Railways.
 - c) Why is safety important in signaling?
 - d) Explain Modern Signaling Systems.
 - e) Explain the Role of the Signaling & Telecommunications Department.

- Q.3 Attempt Any Two** **12**
- a) Write note on Railway Track Circuit.
 - b) Write a note on Windows NT.
 - c) Write a note on Telecommunication for Train Operation.

Section – II

- Q.4 Attempt Any Four** **16**
- a) What is Networked PA System in railway? Explain.
 - b) Explain VoIP based Train Control communication System (TCCS).
 - c) Write a note on UHF Digital (License free band radio) Handheld Trans-receivers.
 - d) What is railway signaling equipment & communications systems?
 - e) Explain trains through two-way satellite communication.

- Q.5 Attempt Any Two** **12**
- a) Give Safety Slogans for Signal Department.
 - b) Give the advantages of IP based Video Surveillance System.
 - c) Write note on Technologies and processes to meet the challenges of signaling system maintenance.

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Which is the fastest train in India 2020?
 - a) Duronto express
 - b) Vande Bharat Express
 - c) Shatabdi express
 - d) Tejas Express
- 2) Intermediate Block Signaling using MSDAC system consists of the following component:
 - a) Axle Detectors
 - b) Electronics Field Units
 - c) Central Evaluator
 - d) All of the above
- 3) In railways, the disc signals are provided for the purpose of _____.
 - a) dead slow movement
 - b) indicating busy platform
 - c) Shunting
 - d) possible danger ahead
- 4) Shunting signals are known as _____.
 - a) Routing signals
 - b) Starter signals
 - c) Ground signals
 - d) Warner signals
- 5) IT tools and business systems in IR are _____.
 - a) Mobile Ticketing
 - b) Web Ticketing
 - c) Kiosk-based Ticketing
 - d) All of above
- 6) What is the full form of IRCTC?
 - a) Indian Railway Catering and Tourism Corporation
 - b) Indian Railway Corporation and Tourism Corporation
 - c) Indian Railway Catering and Tourist Corporation
 - d) Indian Railway Catering and Tourism Council
- 7) In railways the signal that also acts as a routing signal is _____.
 - a) home signal
 - b) advance starter signal
 - c) outer signal
 - d) starter signal
- 8) _____ for monitoring of stations, tracks and passengers.
 - a) Train Tracking
 - b) Train signaling
 - c) Train surveillance
 - d) Train Monitoring

- 9) The reception signal is _____.
a) outer signal only
b) starter only
c) neither (outer signal) nor (starter)
d) both (outer signal) and (starter)
- 10) The stations which do not have any signal are known as
a) A-class stations
b) B-class stations
c) Crossing stations
d) Terminal stations
- 11) UTS (Unreserved Ticketing System) is a mobile app developed by
a) IRCTC
b) CRIS
c) C-DAC
d) None of these
- 12) How many zones are there in Indian Railways?
a) 16
b) 22
c) 20
d) 18
- 13) What is the width of Broad Gauge Railway line in India?
a) 2 m
b) 1.67 m
c) 1.32 m
d) 1 m
- 14) The safety in Railway in India is looked after by _____.
a) Ministry of Railways
b) Commission of Railway Safety
c) Railway Board
d) Headquarter Office

Seat No.	
-----------------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four** **16**
- a) What is railway signaling system?
 - b) Explain Introduction of IOT in Indian Railways.
 - c) Why is safety important in signaling?
 - d) Explain Modern Signaling Systems.
 - e) Explain the Role of the Signaling & Telecommunications Department.

- Q.3 Attempt Any Two** **12**
- a) Write note on Railway Track Circuit.
 - b) Write a note on Windows NT.
 - c) Write a note on Telecommunication for Train Operation.

Section – II

- Q.4 Attempt Any Four** **16**
- a) What is Networked PA System in railway? Explain.
 - b) Explain VoIP based Train Control communication System (TCCS).
 - c) Write a note on UHF Digital (License free band radio) Handheld Trans-receivers.
 - d) What is railway signaling equipment & communications systems?
 - e) Explain trains through two-way satellite communication.

- Q.5 Attempt Any Two** **12**
- a) Give Safety Slogans for Signal Department.
 - b) Give the advantages of IP based Video Surveillance System.
 - c) Write note on Technologies and processes to meet the challenges of signaling system maintenance.

Seat No.	
-----------------	--

Set R

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four** **16**
- a) What is railway signaling system?
 - b) Explain Introduction of IOT in Indian Railways.
 - c) Why is safety important in signaling?
 - d) Explain Modern Signaling Systems.
 - e) Explain the Role of the Signaling & Telecommunications Department.

- Q.3 Attempt Any Two** **12**
- a) Write note on Railway Track Circuit.
 - b) Write a note on Windows NT.
 - c) Write a note on Telecommunication for Train Operation.

Section – II

- Q.4 Attempt Any Four** **16**
- a) What is Networked PA System in railway? Explain.
 - b) Explain VoIP based Train Control communication System (TCCS).
 - c) Write a note on UHF Digital (License free band radio) Handheld Trans-receivers.
 - d) What is railway signaling equipment & communications systems?
 - e) Explain trains through two-way satellite communication.

- Q.5 Attempt Any Two** **12**
- a) Give Safety Slogans for Signal Department.
 - b) Give the advantages of IP based Video Surveillance System.
 - c) Write note on Technologies and processes to meet the challenges of signaling system maintenance.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the width of Broad Gauge Railway line in India?
 - a) 2 m
 - b) 1.67 m
 - c) 1.32 m
 - d) 1 m
- 2) The safety in Railway in India is looked after by _____.
 - a) Ministry of Railways
 - b) Commission of Railway Safety
 - c) Railway Board
 - d) Headquarter Office
- 3) Which is the fastest train in India 2020?
 - a) Durgam express
 - b) Vande Bharat Express
 - c) Shatabdi express
 - d) Tejas Express
- 4) Intermediate Block Signaling using MSDAC system consists of the following component:
 - a) Axle Detectors
 - b) Electronics Field Units
 - c) Central Evaluator
 - d) All of the above
- 5) In railways, the disc signals are provided for the purpose of _____.
 - a) dead slow movement
 - b) indicating busy platform
 - c) Shunting
 - d) possible danger ahead
- 6) Shunting signals are known as _____.
 - a) Routing signals
 - b) Starter signals
 - c) Ground signals
 - d) Warner signals
- 7) IT tools and business systems in IR are _____.
 - a) Mobile Ticketing
 - b) Web Ticketing
 - c) Kiosk-based Ticketing
 - d) All of above
- 8) What is the full form of IRCTC?
 - a) Indian Railway Catering and Tourism Corporation
 - b) Indian Railway Corporation and Tourism Corporation
 - c) Indian Railway Catering and Tourist Corporation
 - d) Indian Railway Catering and Tourism Council

Seat No.	
-----------------	--

Set S

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Railway Engineering-Advanced Communication and Modern Signaling in
Railway (BTN06717)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Four** **16**
- a) What is railway signaling system?
 - b) Explain Introduction of IOT in Indian Railways.
 - c) Why is safety important in signaling?
 - d) Explain Modern Signaling Systems.
 - e) Explain the Role of the Signaling & Telecommunications Department.

- Q.3 Attempt Any Two** **12**
- a) Write note on Railway Track Circuit.
 - b) Write a note on Windows NT.
 - c) Write a note on Telecommunication for Train Operation.

Section – II

- Q.4 Attempt Any Four** **16**
- a) What is Networked PA System in railway? Explain.
 - b) Explain VoIP based Train Control communication System (TCCS).
 - c) Write a note on UHF Digital (License free band radio) Handheld Trans-receivers.
 - d) What is railway signaling equipment & communications systems?
 - e) Explain trains through two-way satellite communication.

- Q.5 Attempt Any Two** **12**
- a) Give Safety Slogans for Signal Department.
 - b) Give the advantages of IP based Video Surveillance System.
 - c) Write note on Technologies and processes to meet the challenges of signaling system maintenance.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary
 - 5) Use of nonprogrammable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the primary purpose of stating research objectives in a study?
 - a) To summarize the research findings
 - b) To provide a background of the research topic
 - c) To clarify the purpose and direction of the research
 - d) To list the research team members
- 2) Which type of research is typically conducted to solve practical problems or address specific issues?
 - a) Applied research
 - b) Fundamental research
 - c) Descriptive research
 - d) Analytical research
- 3) When reading a journal article, you should do what?
 - a) Use the same ideas for your project
 - b) Approach it with a questioning style
 - c) Read it as a way of obtaining more information
 - d) Accept their ideas after all they are published authors
- 4) What is a hypothesis in research?
 - a) A conclusion drawn from data analysis
 - b) A summary of research findings
 - c) A measurement of data accuracy
 - d) A statement of predicted relationship between variables
- 5) In order to pursue the research, which of the following is priorly required?
 - a) Developing a research design
 - b) Formulating a research question
 - c) Deciding about the data analysis procedure
 - d) Formulating a research hypothesis

- 6) What role does a literature review play in defining a research problem?
- It is optional and doesn't significantly impact problem definition.
 - It helps identify gaps in existing knowledge and informs problem formulation.
 - It only provides historical context but doesn't contribute to problem definition.
 - It eliminates the need for developing a hypothesis.
- 7) A complete list of all the sampling units is called:
- Sampling design
 - Sampling frame
 - Population frame
 - Cluster
- 8) Which feature is essential for a good research design?
- Completing the research quickly
 - Simplicity and ease of execution
 - Relying solely on secondary data
 - Ignoring ethical considerations
- 9) Deciding what data is best for your research analysis depends upon which of the following?
- The research question
 - The nature of the participants
 - The researcher's personal preferences
 - All of these
- 10) ANOVA is _____
- A government body which collects social statistics.
 - The name of a statistical software package.
 - A one-way analysis of variance.
 - A two-way analysis of variance.
- 11) Which of the following is not one of the seven major parts to the research report?
- Results
 - Abstract
 - Method
 - Footnotes
- 12) Which type of report aims to provide an overview of a specific topic, often for decision-makers?
- Research report
 - Technical report
 - Feasibility report
 - Progress report
- 13) Which basic ethical principle involves telling the truth and avoiding deception in research?
- Objectivity
 - Honesty
 - Efficiency
 - Accuracy
- 14) What is a "conflict of interest" in research ethics?
- A situation where researchers refuse to share their findings with colleagues
 - A situation where researchers have a personal or financial interest that may influence their research
 - A situation where researchers are not interested in the research topic
 - A situation where research results are too interesting to be true

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary
4) Use of nonprogrammable calculator is allowed.

Section – I

- Q.2 Solve any Four of the Followings 16**
- a) What are the needs and objectives of research? Explain in detail.
 - b) Explain the Criteria for good Research.
 - c) Describe the important points to be considered for selecting a Research problem.
 - d) Discuss about research design.
 - e) What are the different strategic for good sample design?
- Q.3 Solve any two of the following 12**
- a) Why we need research Design? What are its features? Explain the Basic principle of research Design.
 - b) What are different types of research? Explain any four with suitable examples.
 - c) What is a research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points.

Section – II

- Q.4 Solve any Four of the following 16**
- a) Describe data analysis and explain in details any two types of data analysis.
 - b) Write short notes on ANOVA.
 - c) What are the issues that should be addressed while writing a research report?
 - d) Explain the Research and Publication ethics.
 - e) Write a comprehensive note on the “writing research proposal (synopsis)”.
- Q.5 Solve any two of the followings 12**
- a) What do you think about Plagiarism, Citation, Bibliography, referencing and footnotes?
 - b) Write about honestly, Objectivity, Efficiency and Accuracy of research.
 - c) Describe various data collection methods. Explain the Chi-square method for data processing and analysis.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary
 - 5) Use of nonprogrammable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which feature is essential for a good research design?
 - a) Completing the research quickly
 - b) Simplicity and ease of execution
 - c) Relying solely on secondary data
 - d) Ignoring ethical considerations
- 2) Deciding what data is best for your research analysis depends upon which of the following?
 - a) The research question
 - b) The nature of the participants
 - c) The researcher's personal preferences
 - d) All of these
- 3) ANOVA is _____.
 - a) A government body which collects social statistics.
 - b) The name of a statistical software package.
 - c) A one-way analysis of variance.
 - d) A two-way analysis of variance.
- 4) Which of the following is not one of the seven major parts to the research report?

a) Results	b) Abstract
c) Method	d) Footnotes
- 5) Which type of report aims to provide an overview of a specific topic, often for decision-makers?

a) Research report	b) Technical report
c) Feasibility report	d) Progress report
- 6) Which basic ethical principle involves telling the truth and avoiding deception in research?

a) Objectivity	b) Honesty
c) Efficiency	d) Accuracy

- 7) What is a "conflict of interest" in research ethics?
- a) A situation where researchers refuse to share their findings with colleagues
 - b) A situation where researchers have a personal or financial interest that may influence their research
 - c) A situation where researchers are not interested in the research topic
 - d) A situation where research results are too interesting to be true
- 8) What is the primary purpose of stating research objectives in a study?
- a) To summarize the research findings
 - b) To provide a background of the research topic
 - c) To clarify the purpose and direction of the research
 - d) To list the research team members
- 9) Which type of research is typically conducted to solve practical problems or address specific issues?
- a) Applied research
 - b) Fundamental research
 - c) Descriptive research
 - d) Analytical research
- 10) When reading a journal article, you should do what?
- a) Use the same ideas for your project
 - b) Approach it with a questioning style
 - c) Read it as a way of obtaining more information
 - d) Accept their ideas after all they are published authors
- 11) What is a hypothesis in research?
- a) A conclusion drawn from data analysis
 - b) A summary of research findings
 - c) A measurement of data accuracy
 - d) A statement of predicted relationship between variables
- 12) In order to pursue the research, which of the following is priorly required?
- a) Developing a research design
 - b) Formulating a research question
 - c) Deciding about the data analysis procedure
 - d) Formulating a research hypothesis
- 13) What role does a literature review play in defining a research problem?
- a) It is optional and doesn't significantly impact problem definition.
 - b) It helps identify gaps in existing knowledge and informs problem formulation.
 - c) It only provides historical context but doesn't contribute to problem definition.
 - d) It eliminates the need for developing a hypothesis.
- 14) A complete list of all the sampling units is called:
- a) Sampling design
 - b) Sampling frame
 - c) Population frame
 - d) Cluster

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary
 4) Use of nonprogrammable calculator is allowed.

Section – I

- Q.2 Solve any Four of the Followings** **16**
- a) What are the needs and objectives of research? Explain in detail.
 - b) Explain the Criteria for good Research.
 - c) Describe the important points to be considered for selecting a Research problem.
 - d) Discuss about research design.
 - e) What are the different strategic for good sample design?
- Q.3 Solve any two of the following** **12**
- a) Why we need research Design? What are its features? Explain the Basic principle of research Design.
 - b) What are different types of research? Explain any four with suitable examples.
 - c) What is a research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points.

Section – II

- Q.4 Solve any Four of the following** **16**
- a) Describe data analysis and explain in details any two types of data analysis.
 - b) Write short notes on ANOVA.
 - c) What are the issues that should be addressed while writing a research report?
 - d) Explain the Research and Publication ethics.
 - e) Write a comprehensive note on the “writing research proposal (synopsis)”.
- Q.5 Solve any two of the followings** **12**
- a) What do you think about Plagiarism, Citation, Bibliography, referencing and footnotes?
 - b) Write about honestly, Objectivity, Efficiency and Accuracy of research.
 - c) Describe various data collection methods. Explain the Chi-square method for data processing and analysis.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary
5) Use of nonprogrammable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is not one of the seven major parts to the research report?

a) Results	b) Abstract
c) Method	d) Footnotes

- 2) Which type of report aims to provide an overview of a specific topic, often for decision-makers?

a) Research report	b) Technical report
c) Feasibility report	d) Progress report

- 3) Which basic ethical principle involves telling the truth and avoiding deception in research?

a) Objectivity	b) Honesty
c) Efficiency	d) Accuracy

- 4) What is a "conflict of interest" in research ethics?
 - a) A situation where researchers refuse to share their findings with colleagues
 - b) A situation where researchers have a personal or financial interest that may influence their research
 - c) A situation where researchers are not interested in the research topic
 - d) A situation where research results are too interesting to be true

- 5) What is the primary purpose of stating research objectives in a study?
 - a) To summarize the research findings
 - b) To provide a background of the research topic
 - c) To clarify the purpose and direction of the research
 - d) To list the research team members

- 6) Which type of research is typically conducted to solve practical problems or address specific issues?
 - a) Applied research
 - b) Fundamental research
 - c) Descriptive research
 - d) Analytical research

- 7) When reading a journal article, you should do what?
- a) Use the same ideas for your project
 - b) Approach it with a questioning style
 - c) Read it as a way of obtaining more information
 - d) Accept their ideas after all they are published authors
- 8) What is a hypothesis in research?
- a) A conclusion drawn from data analysis
 - b) A summary of research findings
 - c) A measurement of data accuracy
 - d) A statement of predicted relationship between variables
- 9) In order to pursue the research, which of the following is priorly required?
- a) Developing a research design
 - b) Formulating a research question
 - c) Deciding about the data analysis procedure
 - d) Formulating a research hypothesis
- 10) What role does a literature review play in defining a research problem?
- a) It is optional and doesn't significantly impact problem definition.
 - b) It helps identify gaps in existing knowledge and informs problem formulation.
 - c) It only provides historical context but doesn't contribute to problem definition.
 - d) It eliminates the need for developing a hypothesis.
- 11) A complete list of all the sampling units is called:
- a) Sampling design
 - b) Sampling frame
 - c) Population frame
 - d) Cluster
- 12) Which feature is essential for a good research design?
- a) Completing the research quickly
 - b) Simplicity and ease of execution
 - c) Relying solely on secondary data
 - d) Ignoring ethical considerations
- 13) Deciding what data is best for your research analysis depends upon which of the following?
- a) The research question
 - b) The nature of the participants
 - c) The researcher's personal preferences
 - d) All of these
- 14) ANOVA is _____
- a) A government body which collects social statistics.
 - b) The name of a statistical software package.
 - c) A one-way analysis of variance.
 - d) A two-way analysis of variance.

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary
 4) Use of nonprogrammable calculator is allowed.

Section – I

- Q.2 Solve any Four of the Followings** **16**
- a) What are the needs and objectives of research? Explain in detail.
 - b) Explain the Criteria for good Research.
 - c) Describe the important points to be considered for selecting a Research problem.
 - d) Discuss about research design.
 - e) What are the different strategic for good sample design?
- Q.3 Solve any two of the following** **12**
- a) Why we need research Design? What are its features? Explain the Basic principle of research Design.
 - b) What are different types of research? Explain any four with suitable examples.
 - c) What is a research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points.

Section – II

- Q.4 Solve any Four of the following** **16**
- a) Describe data analysis and explain in details any two types of data analysis.
 - b) Write short notes on ANOVA.
 - c) What are the issues that should be addressed while writing a research report?
 - d) Explain the Research and Publication ethics.
 - e) Write a comprehensive note on the “writing research proposal (synopsis)”.
- Q.5 Solve any two of the followings** **12**
- a) What do you think about Plagiarism, Citation, Bibliography, referencing and footnotes?
 - b) Write about honestly, Objectivity, Efficiency and Accuracy of research.
 - c) Describe various data collection methods. Explain the Chi-square method for data processing and analysis.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary
 - 5) Use of nonprogrammable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What role does a literature review play in defining a research problem?
 - a) It is optional and doesn't significantly impact problem definition.
 - b) It helps identify gaps in existing knowledge and informs problem formulation.
 - c) It only provides historical context but doesn't contribute to problem definition.
 - d) It eliminates the need for developing a hypothesis.
- 2) A complete list of all the sampling units is called:

a) Sampling design	b) Sampling frame
c) Population frame	d) Cluster
- 3) Which feature is essential for a good research design?
 - a) Completing the research quickly
 - b) Simplicity and ease of execution
 - c) Relying solely on secondary data
 - d) Ignoring ethical considerations
- 4) Deciding what data is best for your research analysis depends upon which of the following?
 - a) The research question
 - b) The nature of the participants
 - c) The researcher's personal preferences
 - d) All of these
- 5) ANOVA is _____.
 - a) A government body which collects social statistics.
 - b) The name of a statistical software package.
 - c) A one-way analysis of variance.
 - d) A two-way analysis of variance.
- 6) Which of the following is not one of the seven major parts to the research report?

a) Results	b) Abstract
c) Method	d) Footnotes

- 7) Which type of report aims to provide an overview of a specific topic, often for decision-makers?
- a) Research report
 - b) Technical report
 - c) Feasibility report
 - d) Progress report
- 8) Which basic ethical principle involves telling the truth and avoiding deception in research?
- a) Objectivity
 - b) Honesty
 - c) Efficiency
 - d) Accuracy
- 9) What is a "conflict of interest" in research ethics?
- a) A situation where researchers refuse to share their findings with colleagues
 - b) A situation where researchers have a personal or financial interest that may influence their research
 - c) A situation where researchers are not interested in the research topic
 - d) A situation where research results are too interesting to be true
- 10) What is the primary purpose of stating research objectives in a study?
- a) To summarize the research findings
 - b) To provide a background of the research topic
 - c) To clarify the purpose and direction of the research
 - d) To list the research team members
- 11) Which type of research is typically conducted to solve practical problems or address specific issues?
- a) Applied research
 - b) Fundamental research
 - c) Descriptive research
 - d) Analytical research
- 12) When reading a journal article, you should do what?
- a) Use the same ideas for your project
 - b) Approach it with a questioning style
 - c) Read it as a way of obtaining more information
 - d) Accept their ideas after all they are published authors
- 13) What is a hypothesis in research?
- a) A conclusion drawn from data analysis
 - b) A summary of research findings
 - c) A measurement of data accuracy
 - d) A statement of predicted relationship between variables
- 14) In order to pursue the research, which of the following is priorly required?
- a) Developing a research design
 - b) Formulating a research question
 - c) Deciding about the data analysis procedure
 - d) Formulating a research hypothesis

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Research Methodology (BTN06704)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary
4) Use of nonprogrammable calculator is allowed.

Section – I

- Q.2 Solve any Four of the Followings 16**
- a) What are the needs and objectives of research? Explain in detail.
 - b) Explain the Criteria for good Research.
 - c) Describe the important points to be considered for selecting a Research problem.
 - d) Discuss about research design.
 - e) What are the different strategic for good sample design?
- Q.3 Solve any two of the following 12**
- a) Why we need research Design? What are its features? Explain the Basic principle of research Design.
 - b) What are different types of research? Explain any four with suitable examples.
 - c) What is a research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points.

Section – II

- Q.4 Solve any Four of the following 16**
- a) Describe data analysis and explain in details any two types of data analysis.
 - b) Write short notes on ANOVA.
 - c) What are the issues that should be addressed while writing a research report?
 - d) Explain the Research and Publication ethics.
 - e) Write a comprehensive note on the “writing research proposal (synopsis)”.
- Q.5 Solve any two of the followings 12**
- a) What do you think about Plagiarism, Citation, Bibliography, referencing and footnotes?
 - b) Write about honestly, Objectivity, Efficiency and Accuracy of research.
 - c) Describe various data collection methods. Explain the Chi-square method for data processing and analysis.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is machine learning?
 - a) Selective acquisition of knowledge through the use of manual programs
 - b) Selective acquisition of knowledge through the use of computer programs
 - c) Autonomous acquisition of knowledge through the use of manual programs
 - d) Autonomous acquisition of knowledge through the use of computer programs

- 2) How can you handle missing or corrupted data in a dataset?
 - a) Drop missing rows or columns
 - b) Assign a unique category to missing values
 - c) Replace missing values with mean/median/mode
 - d) All of the above

- 3) Machine learning algorithms build a model based on sample data, known as _____.

a) Training Data	b) Transfer Data
c) Data Training	d) None of the above

- 4) _____ is the machine learning algorithms that can be used with labeled data.

a) Regression algorithms	b) Clustering algorithms
c) Association algorithms	d) All of the above

- 5) _____ is used as an input to the machine learning model for training and prediction purposes.

a) Feature	b) Feature Vector
c) Both a and b	d) None of the above

- 6) _____ is the scenario when the model fails to decipher the underlying trend in the input data.

a) Overfitting	b) Underfitting
c) Both a and b	d) None of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve any four. 16**
- a) Explain data processing steps for ML in brief.
 - b) Explain Binary Classification with examples.
 - c) Explain Concept of Perceptron with neat diagram.
 - d) Explain Supervised type of learning with examples.
 - e) Explain the type of regression. Illustrate K means clustering algorithm with an example.
- Q.3 Solve any Two. 12**
- a) Distinguish between supervised learning and Reinforcement learning. Illustrate with an example.
 - b) Compare Classification with regression with an example.
 - c) Distinguish between overfitting and underfitting. How it can affect model generalization?

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) Explain Feed Forward Network & Back Propagation Algorithm.
 - b) Explain naive bayes classification in brief.
 - c) Explain the terms: Gini Index
 - d) Describe the random forest algorithm in brief.
 - e) What is ANN? Explain different types of ANN.
- Q.5 Solve Any Two. 12**
- a) Explain Email Spam and Malware Filtering.
 - b) Differentiate between Deep learning vs Machine Learning.
 - c) Discuss decision tree algorithm with example. Mention its advantages and disadvantages.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is not a supervised learning?
 - a) PCA
 - b) Naive Bayesian
 - c) Linear Regression
 - d) Decision Tree
- 2) Real-Time decisions, Game AI, Learning Tasks, Skill acquisition, and Robot Navigation are applications of _____.
 - a) Reinforcement Learning
 - b) Supervised Learning: Classification
 - c) Unsupervised Learning: Regression
 - d) None of the above
- 3) _____ is a disadvantage of decision trees.
 - a) Decision trees are robust to outliers
 - b) Decision trees are prone to be overfit
 - c) Both a and b
 - d) None of the above
- 4) _____ is a part of machine learning that works with neural networks.
 - a) Artificial intelligence
 - b) Deep learning
 - c) Both a and b
 - d) None of the above
- 5) Which machine learning models are trained to make a series of decisions based on the rewards and feedback they receive for their actions?
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) All of the above
- 6) The most common issue when using ML is _____.
 - a) Lack of skilled resources
 - b) Inadequate Infrastructure
 - c) Poor Data Quality
 - d) None of these

- 7) _____ is a widely used and effective machine learning algorithm based on the idea of bagging.
- a) Regression
 - b) Classification
 - c) Decision Tree
 - d) Radom Forest
- 8) What is machine learning?
- a) Selective acquisition of knowledge through the use of manual programs
 - b) Selective acquisition of knowledge through the use of computer programs
 - c) Autonomous acquisition of knowledge through the use of manual programs
 - d) Autonomous acquisition of knowledge through the use of computer programs
- 9) How can you handle missing or corrupted data in a dataset?
- a) Drop missing rows or columns
 - b) Assign a unique category to missing values
 - c) Replace missing values with mean/median/mode
 - d) All of the above
- 10) Machine learning algorithms build a model based on sample data, known as _____
- a) Training Data
 - b) Transfer Data
 - c) Data Training
 - d) None of the above
- 11) _____ is the machine learning algorithms that can be used with labeled data.
- a) Regression algorithms
 - b) Clustering algorithms
 - c) Association algorithms
 - d) All of the above
- 12) _____ is used as an input to the machine learning model for training and prediction purposes.
- a) Feature
 - b) Feature Vector
 - c) Both a and b
 - d) None of the above
- 13) _____ is the scenario when the model fails to decipher the underlying trend in the input data.
- a) Overfitting
 - b) Underfitting
 - c) Both a and b
 - d) None of the above
- 14) The term machine learning was coined by _____
- a) James Gosling
 - b) Arthur Samuel
 - c) Guido van Rossum
 - d) None of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any four. 16

- Explain data processing steps for ML in brief.
- Explain Binary Classification with examples.
- Explain Concept of Perceptron with neat diagram.
- Explain Supervised type of learning with examples.
- Explain the type of regression. Illustrate K means clustering algorithm with an example.

Q.3 Solve any Two. 12

- Distinguish between supervised learning and Reinforcement learning. Illustrate with an example.
- Compare Classification with regression with an example.
- Distinguish between overfitting and underfitting. How it can affect model generalization?

Section – II

Q.4 Answer the following (Any Four) 16

- Explain Feed Forward Network & Back Propagation Algorithm.
- Explain naive bayes classification in brief.
- Explain the terms: Gini Index
- Describe the random forest algorithm in brief.
- What is ANN? Explain different types of ANN.

Q.5 Solve Any Two. 12

- Explain Email Spam and Malware Filtering.
- Differentiate between Deep learning vs Machine Learning.
- Discuss decision tree algorithm with example. Mention its advantages and disadvantages.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is a part of machine learning that works with neural networks.
 - a) Artificial intelligence
 - b) Deep learning
 - c) Both a and b
 - d) None of the above
- 2) Which machine learning models are trained to make a series of decisions based on the rewards and feedback they receive for their actions?
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) All of the above
- 3) The most common issue when using ML is _____
 - a) Lack of skilled resources
 - b) Inadequate Infrastructure
 - c) Poor Data Quality
 - d) None of these
- 4) _____ is a widely used and effective machine learning algorithm based on the idea of bagging.
 - a) Regression
 - b) Classification
 - c) Decision Tree
 - d) Radom Forest
- 5) What is machine learning?
 - a) Selective acquisition of knowledge through the use of manual programs
 - b) Selective acquisition of knowledge through the use of computer programs
 - c) Autonomous acquisition of knowledge through the use of manual programs
 - d) Autonomous acquisition of knowledge through the use of computer programs
- 6) How can you handle missing or corrupted data in a dataset?
 - a) Drop missing rows or columns
 - b) Assign a unique category to missing values
 - c) Replace missing values with mean/median/mode
 - d) All of the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Solve any four. 16**
- a) Explain data processing steps for ML in brief.
 - b) Explain Binary Classification with examples.
 - c) Explain Concept of Perceptron with neat diagram.
 - d) Explain Supervised type of learning with examples.
 - e) Explain the type of regression. Illustrate K means clustering algorithm with an example.
- Q.3 Solve any Two. 12**
- a) Distinguish between supervised learning and Reinforcement learning. Illustrate with an example.
 - b) Compare Classification with regression with an example.
 - c) Distinguish between overfitting and underfitting. How it can affect model generalization?

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) Explain Feed Forward Network & Back Propagation Algorithm.
 - b) Explain naive bayes classification in brief.
 - c) Explain the terms: Gini Index
 - d) Describe the random forest algorithm in brief.
 - e) What is ANN? Explain different types of ANN.
- Q.5 Solve Any Two. 12**
- a) Explain Email Spam and Malware Filtering.
 - b) Differentiate between Deep learning vs Machine Learning.
 - c) Discuss decision tree algorithm with example. Mention its advantages and disadvantages.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page No 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is the scenario when the model fails to decipher the underlying trend in the input data.
 - a) Overfitting
 - b) Underfitting
 - c) Both a and b
 - d) None of the above
- 2) The term machine learning was coined by _____.
 - a) James Gosling
 - b) Arthur Samuel
 - c) Guido van Rossum
 - d) None of the above
- 3) Which of the following is not a supervised learning?
 - a) PCA
 - b) Naive Bayesian
 - c) Linear Regression
 - d) Decision Tree
- 4) Real-Time decisions, Game AI, Learning Tasks, Skill acquisition, and Robot Navigation are applications of _____.
 - a) Reinforcement Learning
 - b) Supervised Learning: Classification
 - c) Unsupervised Learning: Regression
 - d) None of the above
- 5) _____ is a disadvantage of decision trees.
 - a) Decision trees are robust to outliers
 - b) Decision trees are prone to be overfit
 - c) Both a and b
 - d) None of the above
- 6) _____ is a part of machine learning that works with neural networks.
 - a) Artificial intelligence
 - b) Deep learning
 - c) Both a and b
 - d) None of the above
- 7) Which machine learning models are trained to make a series of decisions based on the rewards and feedback they receive for their actions?
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) All of the above

- 8) The most common issue when using ML is _____
- a) Lack of skilled resources
 - b) Inadequate Infrastructure
 - c) Poor Data Quality
 - d) None of these
- 9) _____ is a widely used and effective machine learning algorithm based on the idea of bagging.
- a) Regression
 - b) Classification
 - c) Decision Tree
 - d) Radom Forest
- 10) What is machine learning?
- a) Selective acquisition of knowledge through the use of manual programs
 - b) Selective acquisition of knowledge through the use of computer programs
 - c) Autonomous acquisition of knowledge through the use of manual programs
 - d) Autonomous acquisition of knowledge through the use of computer programs
- 11) How can you handle missing or corrupted data in a dataset?
- a) Drop missing rows or columns
 - b) Assign a unique category to missing values
 - c) Replace missing values with mean/median/mode
 - d) All of the above
- 12) Machine learning algorithms build a model based on sample data, known as _____
- a) Training Data
 - b) Transfer Data
 - c) Data Training
 - d) None of the above
- 13) _____ is the machine learning algorithms that can be used with labeled data.
- a) Regression algorithms
 - b) Clustering algorithms
 - c) Association algorithms
 - d) All of the above
- 14) _____ is used as an input to the machine learning model for training and prediction purposes.
- a) Feature
 - b) Feature Vector
 - c) Both a and b
 - d) None of the above

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Machine Learning (197044701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any four. 16

- Explain data processing steps for ML in brief.
- Explain Binary Classification with examples.
- Explain Concept of Perceptron with neat diagram.
- Explain Supervised type of learning with examples.
- Explain the type of regression. Illustrate K means clustering algorithm with an example.

Q.3 Solve any Two. 12

- Distinguish between supervised learning and Reinforcement learning. Illustrate with an example.
- Compare Classification with regression with an example.
- Distinguish between overfitting and underfitting. How it can affect model generalization?

Section – II

Q.4 Answer the following (Any Four) 16

- Explain Feed Forward Network & Back Propagation Algorithm.
- Explain naive bayes classification in brief.
- Explain the terms: Gini Index
- Describe the random forest algorithm in brief.
- What is ANN? Explain different types of ANN.

Q.5 Solve Any Two. 12

- Explain Email Spam and Malware Filtering.
- Differentiate between Deep learning vs Machine Learning.
- Discuss decision tree algorithm with example. Mention its advantages and disadvantages.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The OSI model consists of _____ layers.
 - a) Five
 - b) Seven
 - c) Eight
 - d) Nine
- 2) End-to-end connectivity is provided from host-to-host in.
 - a) Network layer
 - b) Session layer
 - c) Data link layer
 - d) Transport layer
- 3) What protocol is used between E-Mail servers?
 - a) FTP
 - b) SMTP
 - c) SNMP
 - d) POP3
- 4) CRC stands for _____.
 - a) Cyclic Redundancy Check
 - b) Code Repeat Check
 - c) Code Redundancy Check
 - d) Cyclic Repeat Check
- 5) Which of the following is the multiple access protocol for channel access control?
 - a) CSMA/CD
 - b) CSMA/CA
 - c) Both CSMA/CD & CSMA/CA
 - d) HDLC
- 6) The network layer is concerned with _____ of data.
 - a) bits
 - b) frames
 - c) packets
 - d) bytes
- 7) A 4-byte IP address consists of _____.
 - a) only network address
 - b) only host address
 - c) network address & host address
 - d) network address & MAC address
- 8) The network layer protocol for internet is _____.
 - a) Ethernet
 - b) internet protocol
 - c) hypertext transfer protocol
 - d) file transfer
- 9) Which of the following are transport layer protocols used in networking?
 - a) TCP and FTP
 - b) UDP and HTTP
 - c) TCP and UDP
 - d) HTTP and FTP

- 10)** Transport layer protocols deals with _____
- a) application to application communication
 - b) process to process communication
 - c) node to node communication
 - d) man to man communication
- 11)** Which is not a application layer protocol?
- a) HTTP
 - b) SMTP
 - c) FTP
 - d) TCP
- 12)** Application layer offers _____ service.
- a) End to end
 - b) Process to process
 - c) Both End to end and Process to process
 - d) None of the above
- 13)** Which is a time-sensitive service?
- a) File transfer
 - b) File download
 - c) E-mail
 - d) Internet telephony
- 14)** Electronic mail uses which Application layer protocol?
- a) SMTP
 - b) HTTP
 - c) FTP
 - d) SIP

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve the following questions. 12**
- a) Explain in brief of each layer in OSI model.
 - b) Elaborate IEEE802.4 & IEEE802.5.
 - c) Explain TCP/IP Model.
 - d) What is Internet Domain Name System? Draw & explain Domain Server message format.
- Q.3 Solve any Two of the following questions. 16**
- a) Explain distance vector routing with its limitations.
 - b) Differentiate between IPv4 and IPv6.
 - c) Elaborate Sub netting and Masking Protocol.

Section – II

- Q.4 Solve the following questions. 12**
- a) Describe Error detection and error correction Methods.
 - b) What is MAC? Explain different protocols of MAC.
 - c) Write difference between Bluetooth 5.1, 5.2.
 - d) Explain HTTP Protocol.
- Q.5 Solve any Two of the following questions. 16**
- a) Explain shortest path routing.
 - b) Explain TCP connection establishment, using three way handshaking.
 - c) Explain Flow control methods of Data link layer.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The network layer protocol for internet is _____.
 - a) Ethernet
 - b) internet protocol
 - c) hypertext transfer protocol
 - d) file transfer
- 2) Which of the following are transport layer protocols used in networking?
 - a) TCP and FTP
 - b) UDP and HTTP
 - c) TCP and UDP
 - d) HTTP and FTP
- 3) Transport layer protocols deals with _____.
 - a) application to application communication
 - b) process to process communication
 - c) node to node communication
 - d) man to man communication
- 4) Which is not a application layer protocol?
 - a) HTTP
 - b) SMTP
 - c) FTP
 - d) TCP
- 5) Application layer offers _____ service.
 - a) End to end
 - b) Process to process
 - c) Both End to end and Process to process
 - d) None of the above
- 6) Which is a time-sensitive service?
 - a) File transfer
 - b) File download
 - c) E-mail
 - d) Internet telephony
- 7) Electronic mail uses which Application layer protocol?
 - a) SMTP
 - b) HTTP
 - c) FTP
 - d) SIP
- 8) The OSI model consists of _____ layers.
 - a) Five
 - b) Seven
 - c) Eight
 - d) Nine

- 9) End-to-end connectivity is provided from host-to-host in.
- a) Network layer
 - b) Session layer
 - c) Data link layer
 - d) Transport layer
- 10) What protocol is used between E-Mail servers?
- a) FTP
 - b) SMTP
 - c) SNMP
 - d) POP3
- 11) CRC stands for _____
- a) Cyclic Redundancy Check
 - b) Code Repeat Check
 - c) Code Redundancy Check
 - d) Cyclic Repeat Check
- 12) Which of the following is the multiple access protocol for channel access control?
- a) CSMA/CD
 - b) CSMA/CA
 - c) Both CSMA/CD & CSMA/CA
 - d) HDLC
- 13) The network layer is concerned with _____ of data.
- a) bits
 - b) frames
 - c) packets
 - d) bytes
- 14) A 4-byte IP address consists of _____
- a) only network address
 - b) only host address
 - c) network address & host address
 - d) network address & MAC address

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve the following questions. 12**
- a) Explain in brief of each layer in OSI model.
 - b) Elaborate IEEE802.4 & IEEE802.5.
 - c) Explain TCP/IP Model.
 - d) What is Internet Domain Name System? Draw & explain Domain Server message format.
- Q.3 Solve any Two of the following questions. 16**
- a) Explain distance vector routing with its limitations.
 - b) Differentiate between IPv4 and IPv6.
 - c) Elaborate Sub netting and Masking Protocol.

Section – II

- Q.4 Solve the following questions. 12**
- a) Describe Error detection and error correction Methods.
 - b) What is MAC? Explain different protocols of MAC.
 - c) Write difference between Bluetooth 5.1, 5.2.
 - d) Explain HTTP Protocol.
- Q.5 Solve any Two of the following questions. 16**
- a) Explain shortest path routing.
 - b) Explain TCP connection establishment, using three way handshaking.
 - c) Explain Flow control methods of Data link layer.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which is not a application layer protocol?
 - a) HTTP
 - b) SMTP
 - c) FTP
 - d) TCP
- 2) Application layer offers _____ service.
 - a) End to end
 - b) Process to process
 - c) Both End to end and Process to process
 - d) None of the above
- 3) Which is a time-sensitive service?
 - a) File transfer
 - b) File download
 - c) E-mail
 - d) Internet telephony
- 4) Electronic mail uses which Application layer protocol?
 - a) SMTP
 - b) HTTP
 - c) FTP
 - d) SIP
- 5) The OSI model consists of _____ layers.
 - a) Five
 - b) Seven
 - c) Eight
 - d) Nine
- 6) End-to-end connectivity is provided from host-to-host in.
 - a) Network layer
 - b) Session layer
 - c) Data link layer
 - d) Transport layer
- 7) What protocol is used between E-Mail servers?
 - a) FTP
 - b) SMTP
 - c) SNMP
 - d) POP3
- 8) CRC stands for _____.
 - a) Cyclic Redundancy Check
 - b) Code Repeat Check
 - c) Code Redundancy Check
 - d) Cyclic Repeat Check
- 9) Which of the following is the multiple access protocol for channel access control?
 - a) CSMA/CD
 - b) CSMA/CA
 - c) Both CSMA/CD & CSMA/CA
 - d) HDLC

- 10)** The network layer is concerned with _____ of data.
- a) bits
 - b) frames
 - c) packets
 - d) bytes
- 11)** A 4-byte IP address consists of _____
- a) only network address
 - b) only host address
 - c) network address & host address
 - d) network address & MAC address
- 12)** The network layer protocol for internet is _____
- a) Ethernet
 - b) internet protocol
 - c) hypertext transfer protocol
 - d) file transfer
- 13)** Which of the following are transport layer protocols used in networking?
- a) TCP and FTP
 - b) UDP and HTTP
 - c) TCP and UDP
 - d) HTTP and FTP
- 14)** Transport layer protocols deals with _____
- a) application to application communication
 - b) process to process communication
 - c) node to node communication
 - d) man to man communication

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve the following questions. 12**
- a) Explain in brief of each layer in OSI model.
 - b) Elaborate IEEE802.4 & IEEE802.5.
 - c) Explain TCP/IP Model.
 - d) What is Internet Domain Name System? Draw & explain Domain Server message format.
- Q.3 Solve any Two of the following questions. 16**
- a) Explain distance vector routing with its limitations.
 - b) Differentiate between IPv4 and IPv6.
 - c) Elaborate Sub netting and Masking Protocol.

Section – II

- Q.4 Solve the following questions. 12**
- a) Describe Error detection and error correction Methods.
 - b) What is MAC? Explain different protocols of MAC.
 - c) Write difference between Bluetooth 5.1, 5.2.
 - d) Explain HTTP Protocol.
- Q.5 Solve any Two of the following questions. 16**
- a) Explain shortest path routing.
 - b) Explain TCP connection establishment, using three way handshaking.
 - c) Explain Flow control methods of Data link layer.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The network layer is concerned with _____ of data.
 - a) bits
 - b) frames
 - c) packets
 - d) bytes
- 2) A 4-byte IP address consists of _____.
 - a) only network address
 - b) only host address
 - c) network address & host address
 - d) network address & MAC address
- 3) The network layer protocol for internet is _____.
 - a) Ethernet
 - b) internet protocol
 - c) hypertext transfer protocol
 - d) file transfer
- 4) Which of the following are transport layer protocols used in networking?
 - a) TCP and FTP
 - b) UDP and HTTP
 - c) TCP and UDP
 - d) HTTP and FTP
- 5) Transport layer protocols deals with _____.
 - a) application to application communication
 - b) process to process communication
 - c) node to node communication
 - d) man to man communication
- 6) Which is not a application layer protocol?
 - a) HTTP
 - b) SMTP
 - c) FTP
 - d) TCP
- 7) Application layer offers _____ service.
 - a) End to end
 - b) Process to process
 - c) Both End to end and Process to process
 - d) None of the above
- 8) Which is a time-sensitive service?
 - a) File transfer
 - b) File download
 - c) E-mail
 - d) Internet telephony

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Data Communication (197044702)**

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve the following questions. 12**
- a) Explain in brief of each layer in OSI model.
 - b) Elaborate IEEE802.4 & IEEE802.5.
 - c) Explain TCP/IP Model.
 - d) What is Internet Domain Name System? Draw & explain Domain Server message format.
- Q.3 Solve any Two of the following questions. 16**
- a) Explain distance vector routing with its limitations.
 - b) Differentiate between IPv4 and IPv6.
 - c) Elaborate Sub netting and Masking Protocol.

Section – II

- Q.4 Solve the following questions. 12**
- a) Describe Error detection and error correction Methods.
 - b) What is MAC? Explain different protocols of MAC.
 - c) Write difference between Bluetooth 5.1, 5.2.
 - d) Explain HTTP Protocol.
- Q.5 Solve any Two of the following questions. 16**
- a) Explain shortest path routing.
 - b) Explain TCP connection establishment, using three way handshaking.
 - c) Explain Flow control methods of Data link layer.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following. 14

- 1) In the current market scenario, IoT captures the maximum share in which one of these?

a) Industry	b) Security
c) Healthcare	d) Home automation
- 2) M2M stands for _____.

a) MAC to MAC communication
b) Machine to MAC communication
c) Machine to machine communication
d) MAC to machine communication
- 3) Embedded C programming language support _____ instructions of normal "C" language.

a) All	b) Some
c) Specific	d) None
- 4) Cross Compiler converts

a) Program into C language into binary language.
b) Programming C language into another language.
c) Program in C language into program of another processors language.
d) Both a & b
- 5) The _____ registers are useful for temporarily disabling interrupts in timing-critical tasks.

a) PRIMASK	b) BASEPRI
c) Both a and b	d) None of the above
- 6) Which instruction set architecture is used in Raspberry Pi?

a) X86	b) MSP
c) AVR	d) ARM
- 7) What is the value of R1 after MVN R1, #7 is executed?

a) 0x00000007	b) 0xFFFFFFFF8
c) 0xFFFFFFFFFA	d) 0xFFFFFFFF9

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt any four questions. 16**
- a) Define IoT. What are the different components of an IoT system?
 - b) Explain different sensors used in IoT.
 - c) Explain the various embedded platforms used in IoT,
 - d) Write short note on ARM Cortex-M3 processor registers.
 - e) Discuss the operation modes and privilege levels supported in Cortex-M3 processor with neat diagram.
- Q.3 Attempt any two questions. 12**
- a) What are different applications of IoT in various domains?
 - b) What are the various IDEs used for embedded development.
 - c) State and explain any two data processing and arithmetic instructions of Cortex M3.

Section – II

- Q.4 Attempt any four questions. 16**
- a) What is a Bluetooth profile? Discuss a Bluetooth profile in detail.
 - b) Discuss with neat diagram Zigbee protocol.
 - c) Discuss IPv4 communication Protocols in details.
 - d) Explain framework and message format for MQTT.
 - e) Explain smart cities case study.
- Q.5 Attempt any two questions. 12**
- a) Discuss 6LoWPAN communication protocols in details.
 - b) Write the feature of COAP and draw the message frame format of CoAP.
 - c) With neat diagram discuss public, private and hybrid cloud models.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following. 14

- 1) The communication protocol used by Internet is:

a) HTTP	b) WWW
c) TCP/IP	d) FTP
- 2) RFID is an acronym for

a) Radio frequency Identification	b) Random frequency Identification
c) Radio frequency Identify	d) Random frequency identity
- 3) Publish command message is sent from _____

a) Only publisher to broker	b) Only broker to publisher
c) Publisher to broker and broker to publisher	d) Server to client
- 4) MQTT is _____ protocol.

a) Machine to Machine	b) Internet of Things
c) Machine to Machine and Internet of Things	d) Machine Things
- 5) Why is IPv6 preferred over IPv4 for IoT implementations?

a) Larger addressing range	b) More security
c) Both a and b	d) Neither a or b
- 6) IaaS stands for _____

a) Infrastructure as a Service	b) Infrastructure as a software
c) Internet as a Service	d) Internet as a software
- 7) Reduces the development and running cost of mobile applications on smartphone devices,

a) Infrastructure	b) Productive business
c) Software	d) Services

- 8) In the current market scenario, IoT captures the maximum share in which one of these?
- a) Industry
 - b) Security
 - c) Healthcare
 - d) Home automation
- 9) M2M stands for _____
- a) MAC to MAC communication
 - b) Machine to MAC communication
 - c) Machine to machine communication
 - d) MAC to machine communication
- 10) Embedded C programming language support _____ instructions of normal "C" language.
- a) All
 - b) Some
 - c) Specific
 - d) None
- 11) Cross Compiler converts
- a) Program into C language into binary language.
 - b) Programming C language into another language.
 - c) Program in C language into program of another processors language.
 - d) Both a & b
- 12) The _____ registers are useful for temporarily disabling interrupts in timing-critical tasks.
- a) PRIMASK
 - b) BASEPRI
 - c) Both a and b
 - d) None of the above
- 13) Which instruction set architecture is used in Raspberry Pi?
- a) X86
 - b) MSP
 - c) AVR
 - d) ARM
- 14) What is the value of R1 after MVN R1, #7 is executed?
- a) 0x00000007
 - b) 0xFFFFFFFF8
 - c) 0xFFFFFFFFFA
 - d) 0xFFFFFFFF9

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if required.

Section – I

- Q.2 Attempt any four questions. 16**
- a) Define IoT. What are the different components of an IoT system?
 - b) Explain different sensors used in IoT.
 - c) Explain the various embedded platforms used in IoT,
 - d) Write short note on ARM Cortex-M3 processor registers.
 - e) Discuss the operation modes and privilege levels supported in Cortex-M3 processor with neat diagram.
- Q.3 Attempt any two questions. 12**
- a) What are different applications of IoT in various domains?
 - b) What are the various IDEs used for embedded development.
 - c) State and explain any two data processing and arithmetic instructions of Cortex M3.

Section – II

- Q.4 Attempt any four questions. 16**
- a) What is a Bluetooth profile? Discuss a Bluetooth profile in detail.
 - b) Discuss with neat diagram Zigbee protocol.
 - c) Discuss IPv4 communication Protocols in details.
 - d) Explain framework and message format for MQTT.
 - e) Explain smart cities case study.
- Q.5 Attempt any two questions. 12**
- a) Discuss 6LoWPAN communication protocols in details.
 - b) Write the feature of COAP and draw the message frame format of CoAP.
 - c) With neat diagram discuss public, private and hybrid cloud models.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following.

14

- 1) MQTT is _____ protocol.
 - a) Machine to Machine
 - b) Internet of Things
 - c) Machine to Machine and Internet of Things
 - d) Machine Things
- 2) Why is IPv6 preferred over IPv4 for IoT implementations?
 - a) Larger addressing range
 - b) More security
 - c) Both a and b
 - d) Neither a or b
- 3) IaaS stands for _____

a) Infrastructure as a Service	b) Infrastructure as a software
c) Internet as a Service	d) Internet as a software
- 4) Reduces the development and running cost of mobile applications on smartphone devices,

a) Infrastructure	b) Productive business
c) Software	d) Services
- 5) In the current market scenario, IoT captures the maximum share in which one of these?

a) Industry	b) Security
c) Healthcare	d) Home automation
- 6) M2M stands for _____
 - a) MAC to MAC communication
 - b) Machine to MAC communication
 - c) Machine to machine communication
 - d) MAC to machine communication
- 7) Embedded C programming language support _____ instructions of normal "C" language.

a) All	b) Some
c) Specific	d) None

- 8) Cross Compiler converts
- a) Program into C language into binary language.
 - b) Programming C language into another language.
 - c) Program in C language into program of another processors language.
 - d) Both a & b
- 9) The _____ registers are useful for temporarily disabling interrupts in timing-critical tasks.
- a) PRIMASK
 - b) BASEPRI
 - c) Both a and b
 - d) None of the above
- 10) Which instruction set architecture is used in Raspberry Pi?
- a) X86
 - b) MSP
 - c) AVR
 - d) ARM
- 11) What is the value of R1 after MVN R1, #7 is executed?
- a) 0x00000007
 - b) 0xFFFFFFFF8
 - c) 0xFFFFFFFFFA
 - d) 0xFFFFFFFF9
- 12) The communication protocol used by Internet is:
- a) HTTP
 - b) WWW
 - c) TCP/IP
 - d) FTP
- 13) RFID is an acronym for
- a) Radio frequency Identification
 - b) Random frequency Identification
 - c) Radio frequency Identify
 - d) Random frequency identity
- 14) Publish command message is sent from _____
- a) Only publisher to broker
 - b) Only broker to publisher
 - c) Publisher to broker and broker to publisher
 - d) Server to client

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt any four questions. 16**
- a) Define IoT. What are the different components of an IoT system?
 - b) Explain different sensors used in IoT.
 - c) Explain the various embedded platforms used in IoT,
 - d) Write short note on ARM Cortex-M3 processor registers.
 - e) Discuss the operation modes and privilege levels supported in Cortex-M3 processor with neat diagram.
- Q.3 Attempt any two questions. 12**
- a) What are different applications of IoT in various domains?
 - b) What are the various IDEs used for embedded development.
 - c) State and explain any two data processing and arithmetic instructions of Cortex M3.

Section – II

- Q.4 Attempt any four questions. 16**
- a) What is a Bluetooth profile? Discuss a Bluetooth profile in detail.
 - b) Discuss with neat diagram Zigbee protocol.
 - c) Discuss IPv4 communication Protocols in details.
 - d) Explain framework and message format for MQTT.
 - e) Explain smart cities case study.
- Q.5 Attempt any two questions. 12**
- a) Discuss 6LoWPAN communication protocols in details.
 - b) Write the feature of COAP and draw the message frame format of CoAP.
 - c) With neat diagram discuss public, private and hybrid cloud models.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct option from the following. **14**

- 1) Which instruction set architecture is used in Raspberry Pi?
 - a) X86
 - b) MSP
 - c) AVR
 - d) ARM
- 2) What is the value of R1 after MVN R1, #7 is executed?
 - a) 0x00000007
 - b) 0xFFFFFFFF8
 - c) 0xFFFFF8
 - d) 0xFFFFF9
- 3) The communication protocol used by Internet is:
 - a) HTTP
 - b) WWW
 - c) TCP/IP
 - d) FTP
- 4) RFID is an acronym for
 - a) Radio frequency Identification
 - b) Random frequency Identification
 - c) Radio frequency Identify
 - d) Random frequency identity
- 5) Publish command message is sent from _____
 - a) Only publisher to broker
 - b) Only broker to publisher
 - c) Publisher to broker and broker to publisher
 - d) Server to client
- 6) MQTT is _____ protocol.
 - a) Machine to Machine
 - b) Internet of Things
 - c) Machine to Machine and Internet of Things
 - d) Machine Things
- 7) Why is IPv6 preferred over IPv4 for IoT implementations?
 - a) Larger addressing range
 - b) More security
 - c) Both a and b
 - d) Neither a or b

- 8) IaaS stands for _____
- a) Infrastructure as a Service
 - b) Infrastructure as a software
 - c) Internet as a Service
 - d) Internet as a software
- 9) Reduces the development and running cost of mobile applications on smartphone devices,
- a) Infrastructure
 - b) Productive business
 - c) Software
 - d) Services
- 10) In the current market scenario, IoT captures the maximum share in which one of these?
- a) Industry
 - b) Security
 - c) Healthcare
 - d) Home automation
- 11) M2M stands for _____
- a) MAC to MAC communication
 - b) Machine to MAC communication
 - c) Machine to machine communication
 - d) MAC to machine communication
- 12) Embedded C programming language support _____ instructions of normal "C" language.
- a) All
 - b) Some
 - c) Specific
 - d) None
- 13) Cross Compiler converts
- a) Program into C language into binary language.
 - b) Programming C language into another language.
 - c) Program in C language into program of another processors language.
 - d) Both a & b
- 14) The _____ registers are useful for temporarily disabling interrupts in timing-critical tasks.
- a) PRIMASK
 - b) BASEPRI
 - c) Both a and b
 - d) None of the above

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Internet of Things (197044703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt any four questions. 16**
- a) Define IoT. What are the different components of an IoT system?
 - b) Explain different sensors used in IoT.
 - c) Explain the various embedded platforms used in IoT,
 - d) Write short note on ARM Cortex-M3 processor registers.
 - e) Discuss the operation modes and privilege levels supported in Cortex-M3 processor with neat diagram.
- Q.3 Attempt any two questions. 12**
- a) What are different applications of IoT in various domains?
 - b) What are the various IDEs used for embedded development.
 - c) State and explain any two data processing and arithmetic instructions of Cortex M3.

Section – II

- Q.4 Attempt any four questions. 16**
- a) What is a Bluetooth profile? Discuss a Bluetooth profile in detail.
 - b) Discuss with neat diagram Zigbee protocol.
 - c) Discuss IPv4 communication Protocols in details.
 - d) Explain framework and message format for MQTT.
 - e) Explain smart cities case study.
- Q.5 Attempt any two questions. 12**
- a) Discuss 6LoWPAN communication protocols in details.
 - b) Write the feature of COAP and draw the message frame format of CoAP.
 - c) With neat diagram discuss public, private and hybrid cloud models.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) An E-R diagram can graphically represent the _____.
 - a) Physical structure
 - b) Logical structure
 - c) View structure
 - d) Virtual structure
- 2) An entity set that does not have sufficient attributes to form a primary key is a _____.
 - a) strong entity set
 - b) weak entity set
 - c) simple entity set
 - d) primary entity set
- 3) Non leaf nodes of B+- tree structure form a _____.
 - a) Multilevel clustered indices
 - b) Sparse indices
 - c) Multilevel dense indices
 - d) multilevel sparse indices
- 4) A collection of interrelated records is called a _____.
 - a) Database
 - b) Spreadsheet
 - c) Management information system
 - d) Text file
- 5) Data Manipulation Language (DML) is not to _____.
 - a) Create information table in the Database
 - b) Insertion of new information into the Database
 - c) Deletion of information in the Database
 - d) Modification of information in the Database
- 6) The minimal set of super key is called _____.
 - a) Primary key
 - b) Secondary key
 - c) Candidate key
 - d) Foreign key
- 7) A type of query that is placed within a WHERE or HAVING clause of another query is called _____.
 - a) Super query
 - b) Sub query
 - c) Master query
 - d) Multi-query

- 8) In SQL, which command is used to select only one copy of each set of duplicable rows _____
- a) SELECT DISTINCT b) SELECT UNIQUE
c) SELECT DIFFERENT d) All of the above
- 9) A _____ means that one record in a particular record type is related to only one record of another record type.
- a) One-to-one relationship
b) One-to-many relationship
c) Many-to-one relationship
d) Many-to-many relationship
- 10) In SQL, which command(s) is (are) used to enable/disable all triggers on a table?
- a) ALTER TRIGGERS
b) ALTER TABLE
c) MODIFY TRIGGERS IN TABLE
d) All of the above
- 11) In SQL, which command is used to changes data in a table?
- a) UPDATE b) INSERT
c) BROWSE d) APPEND
- 12) An indexing operation _____
- a) Sorts a file using a single key b) Sorts file using two keys
c) Establishes an index for a file d) Both (b) and (c)
- 13) What are ACID properties of Transactions?
- a) Atomicity, Consistency, Isolation, Database
b) Atomicity, Consistency, Isolation, Durability
c) Atomicity, Consistency, Inconsistent, Durability
d) Automatically, Concurrency, Isolation, Durability
- 14) A relation that has no partial dependencies is in which normal form _____
- a) First b) Second
c) Third d) BCNF

Seat No.	
-------------	--

Set

P

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Attempt any Four. 16**

- a) What is Entity set? and also define Relationship set. List and explain the symbols used to draw ER Diagram.
- b) Explain fundamental and additional relational algebra operations with example.
- c) Explain any four aggregate functions with example.
- d) Explain with example integrity Constraints.
- e) Explain the various transaction states with a neat transaction state diagram.

Q.3 Attempt any One. 06

- a) Write SQL statements for following:
 - 1) Student (Enrno, name, courseId, emailId, cellno)
 - 2) Course (courseId, course_nm, duration)
 - i) Add a column city in student table.
 - ii) Find out list of students who have enrolled in "computer" course.
 - iii) List name of all courses with their duration.
 - iv) List name of all students start with „a".
 - v) List email Id and cell no of all mechanical engineering students.
- b) Consider the following schema
 - 1) Employee (Empid, First_Name, Last_Name, Salary, Department)
 - 2) Write SQL Statements for following Queries.
 - i) Get employee details from employee table whose first name starts with 'J'.
 - ii) Get department, total salary with respect to a department from employee table order by total salary descending.
 - iii) Get First_name from employee table whose salary is more than 10000 and who is from sales department.
 - iv) Find the names of employees whose department and salary is same as employee "Albert king".

Q.4 Attempt the following. 06

What is concurrency control? Explain two-phase locking protocol in detail and list its two drawbacks.

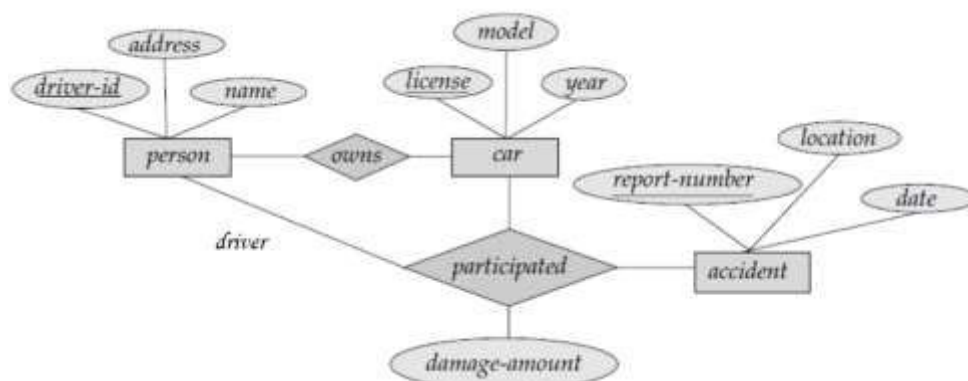
Section – II

Q.5 Attempt any Four**16**

- What is Redundancy? Explain the anomalies in relational database.
- What is static hashing? What rules are followed for index selection?
- Explain difference between B tree and B+ tree indexing.
- What is BCNF? Explain a decomposition example.
- What Is Bigdata? Describe the main features of a big data in detail.

Q.6 Attempt any One.**06**

- Construct appropriate tables for the ER diagram.



E-R diagram for a Car-insurance company

- What is the need for indexing? Explain primary, clustering and secondary index.

Q.7 Attempt the following.**06**

What is Transaction? Explain ACID properties of Transaction in details.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In SQL, which command is used to select only one copy of each set of duplicable rows _____
 - a) SELECT DISTINCT
 - b) SELECT UNIQUE
 - c) SELECT DIFFERENT
 - d) All of the above
- 2) A _____ means that one record in a particular record type is related to only one record of another record type.
 - a) One-to-one relationship
 - b) One-to-many relationship
 - c) Many-to-one relationship
 - d) Many-to-many relationship
- 3) In SQL, which command(s) is (are) used to enable/disable all triggers on a table?
 - a) ALTER TRIGGERS
 - b) ALTER TABLE
 - c) MODIFY TRIGGERS IN TABLE
 - d) All of the above
- 4) In SQL, which command is used to changes data in a table?
 - a) UPDATE
 - b) INSERT
 - c) BROWSE
 - d) APPEND
- 5) An indexing operation _____
 - a) Sorts a file using a single key
 - b) Sorts file using two keys
 - c) Establishes an index for a file
 - d) Both (b) and (c)
- 6) What are ACID properties of Transactions?
 - a) Atomicity, Consistency, Isolation, Database
 - b) Atomicity, Consistency, Isolation, Durability
 - c) Atomicity, Consistency, Inconsistent, Durability
 - d) Automatically, Concurrency, Isolation, Durability
- 7) A relation that has no partial dependencies is in which normal form _____
 - a) First
 - b) Second
 - c) Third
 - d) BCNF

Seat No.	
-------------	--

Set

Q

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. **16**

- a) What is Entity set? and also define Relationship set. List and explain the symbols used to draw ER Diagram.
- b) Explain fundamental and additional relational algebra operations with example.
- c) Explain any four aggregate functions with example.
- d) Explain with example integrity Constraints.
- e) Explain the various transaction states with a neat transaction state diagram.

Q.3 Attempt any One. **06**

- a) Write SQL statements for following:
 - 1) Student (Enrno, name, courseId, emailId, cellno)
 - 2) Course (courseId, course_nm, duration)
 - i) Add a column city in student table.
 - ii) Find out list of students who have enrolled in "computer" course.
 - iii) List name of all courses with their duration.
 - iv) List name of all students start with „a".
 - v) List email Id and cell no of all mechanical engineering students.
- b) Consider the following schema
 - 1) Employee (Empid, First_Name, Last_Name, Salary, Department)
 - 2) Write SQL Statements for following Queries.
 - i) Get employee details from employee table whose first name starts with 'J'.
 - ii) Get department, total salary with respect to a department from employee table order by total salary descending.
 - iii) Get First_name from employee table whose salary is more than 10000 and who is from sales department.
 - iv) Find the names of employees whose department and salary is same as employee "Albert king".

Q.4 Attempt the following. **06**

What is concurrency control? Explain two-phase locking protocol in detail and list its two drawbacks.

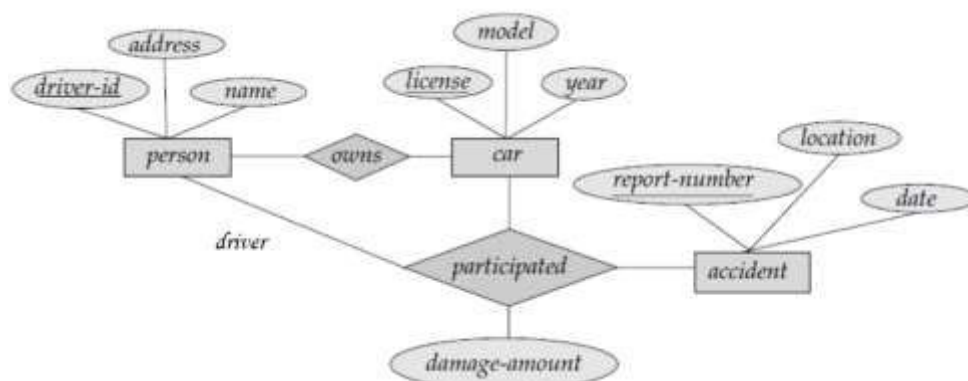
Section – II

Q.5 Attempt any Four**16**

- What is Redundancy? Explain the anomalies in relational database.
- What is static hashing? What rules are followed for index selection?
- Explain difference between B tree and B+ tree indexing.
- What is BCNF? Explain a decomposition example.
- What Is Bigdata? Describe the main features of a big data in detail.

Q.6 Attempt any One.**06**

- Construct appropriate tables for the ER diagram.



E-R diagram for a Car-insurance company

- What is the need for indexing? Explain primary, clustering and secondary index.

Q.7 Attempt the following.**06**

What is Transaction? Explain ACID properties of Transaction in details.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In SQL, which command is used to changes data in a table?
 - a) UPDATE
 - b) INSERT
 - c) BROWSE
 - d) APPEND
- 2) An indexing operation _____
 - a) Sorts a file using a single key
 - b) Sorts file using two keys
 - c) Establishes an index for a file
 - d) Both (b) and (c)
- 3) What are ACID properties of Transactions?
 - a) Atomicity, Consistency, Isolation, Database
 - b) Atomicity, Consistency, Isolation, Durability
 - c) Atomicity, Consistency, Inconsistent, Durability
 - d) Automatically, Concurrency, Isolation, Durability
- 4) A relation that has no partial dependencies is in which normal form _____
 - a) First
 - b) Second
 - c) Third
 - d) BCNF
- 5) An E-R diagram can graphically represent the _____
 - a) Physical structure
 - b) Logical structure
 - c) View structure
 - d) Virtual structure
- 6) An entity set that does not have sufficient attributes to form a primary key is a _____.
 - a) strong entity set
 - b) weak entity set
 - c) simple entity set
 - d) primary entity set
- 7) Non leaf nodes of B+- tree structure form a _____.
 - a) Multilevel clustered indices
 - b) Sparse indices
 - c) Multilevel dense indices
 - d) multilevel sparse indices
- 8) A collection of interrelated records is called a _____.
 - a) Database
 - b) Spreadsheet
 - c) Management information system
 - d) Text file

- 9) Data Manipulation Language (DML) is not to _____
- a) Create information table in the Database
 - b) Insertion of new information into the Database
 - c) Deletion of information in the Database
 - d) Modification of information in the Database
- 10) The minimal set of super key is called _____
- a) Primary key
 - b) Secondary key
 - c) Candidate key
 - d) Foreign key
- 11) A type of query that is placed within a WHERE or HAVING clause of another query is called _____
- a) Super query
 - b) Sub query
 - c) Master query
 - d) Multi-query
- 12) In SQL, which command is used to select only one copy of each set of duplicable rows _____
- a) SELECT DISTINCT
 - b) SELECT UNIQUE
 - c) SELECT DIFFERENT
 - d) All of the above
- 13) A _____ means that one record in a particular record type is related to only one record of another record type.
- a) One-to-one relationship
 - b) One-to-many relationship
 - c) Many-to-one relationship
 - d) Many-to-many relationship
- 15) In SQL, which command(s) is (are) used to enable/disable all triggers on a table?
- a) ALTER TRIGGERS
 - b) ALTER TABLE
 - c) MODIFY TRIGGERS IN TABLE
 - d) All of the above

Seat No.	
-------------	--

Set **R**

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. **16**

- a) What is Entity set? and also define Relationship set. List and explain the symbols used to draw ER Diagram.
- b) Explain fundamental and additional relational algebra operations with example.
- c) Explain any four aggregate functions with example.
- d) Explain with example integrity Constraints.
- e) Explain the various transaction states with a neat transaction state diagram.

Q.3 Attempt any One. **06**

- a) Write SQL statements for following:
 - 1) Student (Enrno, name, courseId, emailId, cellno)
 - 2) Course (courseId, course_nm, duration)
 - i) Add a column city in student table.
 - ii) Find out list of students who have enrolled in "computer" course.
 - iii) List name of all courses with their duration.
 - iv) List name of all students start with „a".
 - v) List email Id and cell no of all mechanical engineering students.
- b) Consider the following schema
 - 1) Employee (Empid, First_Name, Last_Name, Salary, Department)
 - 2) Write SQL Statements for following Queries.
 - i) Get employee details from employee table whose first name starts with 'J'.
 - ii) Get department, total salary with respect to a department from employee table order by total salary descending.
 - iii) Get First_name from employee table whose salary is more than 10000 and who is from sales department.
 - iv) Find the names of employees whose department and salary is same as employee "Albert king".

Q.4 Attempt the following. **06**

What is concurrency control? Explain two-phase locking protocol in detail and list its two drawbacks.

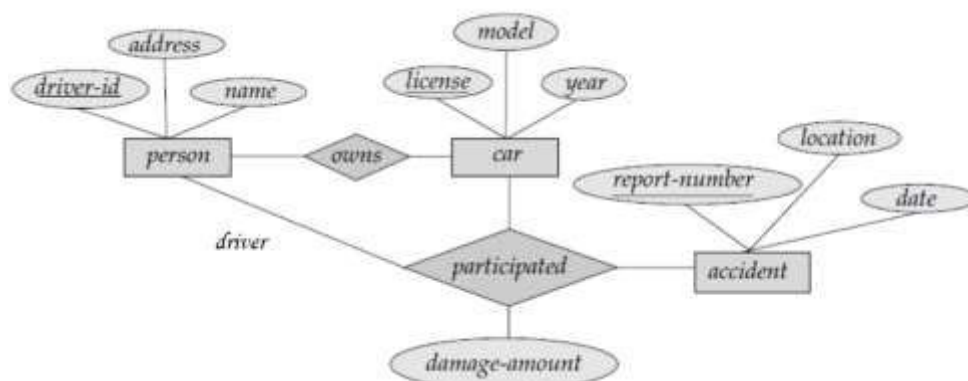
Section – II

Q.5 Attempt any Four**16**

- What is Redundancy? Explain the anomalies in relational database.
- What is static hashing? What rules are followed for index selection?
- Explain difference between B tree and B+ tree indexing.
- What is BCNF? Explain a decomposition example.
- What Is Bigdata? Describe the main features of a big data in detail.

Q.6 Attempt any One.**06**

- Construct appropriate tables for the ER diagram.



E-R diagram for a Car-insurance company

- What is the need for indexing? Explain primary, clustering and secondary index.

Q.7 Attempt the following.**06**

What is Transaction? Explain ACID properties of Transaction in details.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The minimal set of super key is called _____
 - a) Primary key
 - b) Secondary key
 - c) Candidate key
 - d) Foreign key
- 2) A type of query that is placed within a WHERE or HAVING clause of another query is called _____
 - a) Super query
 - b) Sub query
 - c) Master query
 - d) Multi-query
- 3) In SQL, which command is used to select only one copy of each set of duplicable rows _____
 - a) SELECT DISTINCT
 - b) SELECT UNIQUE
 - c) SELECT DIFFERENT
 - d) All of the above
- 4) A _____ means that one record in a particular record type is related to only one record of another record type.
 - a) One-to-one relationship
 - b) One-to-many relationship
 - c) Many-to-one relationship
 - d) Many-to-many relationship
- 5) In SQL, which command(s) is (are) used to enable/disable all triggers on a table?
 - a) ALTER TRIGGERS
 - b) ALTER TABLE
 - c) MODIFY TRIGGERS IN TABLE
 - d) All of the above
- 6) In SQL, which command is used to changes data in a table?
 - a) UPDATE
 - b) INSERT
 - c) BROWSE
 - d) APPEND
- 7) An indexing operation _____
 - a) Sorts a file using a single key
 - b) Sorts file using two keys
 - c) Establishes an index for a file
 - d) Both (b) and (c)

- 8) What are ACID properties of Transactions?
a) Atomicity, Consistency, Isolation, Database
b) Atomicity, Consistency, Isolation, Durability
c) Atomicity, Consistency, Inconsistent, Durability
d) Automatically, Concurrency, Isolation, Durability
- 9) A relation that has no partial dependencies is in which normal form _____
a) First
b) Second
c) Third
d) BCNF
- 10) An E-R diagram can graphically represent the _____
a) Physical structure
b) Logical structure
c) View structure
d) Virtual structure
- 11) An entity set that does not have sufficient attributes to form a primary key is a _____.
a) strong entity set
b) weak entity set
c) simple entity set
d) primary entity set
- 12) Non leaf nodes of B+- tree structure form a _____.
a) Multilevel clustered indices
b) Sparse indices
c) Multilevel dense indices
d) multilevel sparse indices
- 13) A collection of interrelated records is called a _____.
a) Database
b) Spreadsheet
c) Management information system
d) Text file
- 14) Data Manipulation Language (DML) is not to _____.
a) Create information table in the Database
b) Insertion of new information into the Database
c) Deletion of information in the Database
d) Modification of information in the Database

Seat No.	
----------	--

Set

S

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Database Management System (197044704)

Day & Date: Saturday 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any Four. **16**

- a) What is Entity set? and also define Relationship set. List and explain the symbols used to draw ER Diagram.
- b) Explain fundamental and additional relational algebra operations with example.
- c) Explain any four aggregate functions with example.
- d) Explain with example integrity Constraints.
- e) Explain the various transaction states with a neat transaction state diagram.

Q.3 Attempt any One. **06**

- a) Write SQL statements for following:
 - 1) Student (Enrno, name, courseId, emailId, cellno)
 - 2) Course (courseId, course_nm, duration)
 - i) Add a column city in student table.
 - ii) Find out list of students who have enrolled in "computer" course.
 - iii) List name of all courses with their duration.
 - iv) List name of all students start with „a".
 - v) List email Id and cell no of all mechanical engineering students.
- b) Consider the following schema
 - 1) Employee (Empid, First_Name, Last_Name, Salary, Department)
 - 2) Write SQL Statements for following Queries.
 - i) Get employee details from employee table whose first name starts with 'J'.
 - ii) Get department, total salary with respect to a department from employee table order by total salary descending.
 - iii) Get First_name from employee table whose salary is more than 10000 and who is from sales department.
 - iv) Find the names of employees whose department and salary is same as employee "Albert king".

Q.4 Attempt the following. **06**

What is concurrency control? Explain two-phase locking protocol in detail and list its two drawbacks.

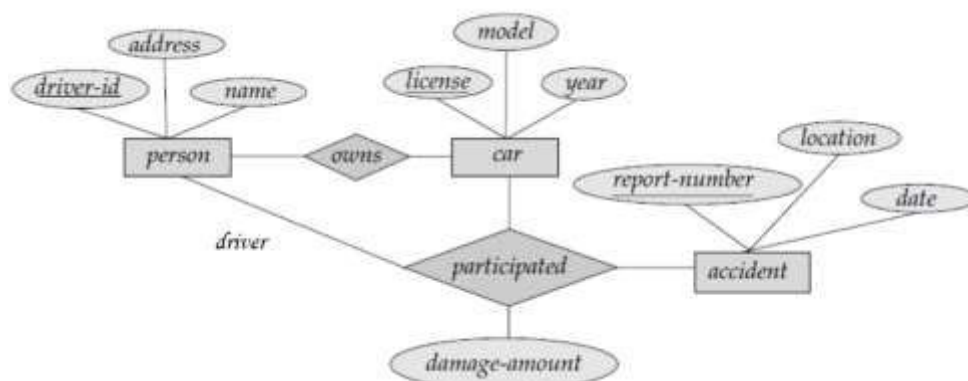
Section – II

Q.5 Attempt any Four**16**

- What is Redundancy? Explain the anomalies in relational database.
- What is static hashing? What rules are followed for index selection?
- Explain difference between B tree and B+ tree indexing.
- What is BCNF? Explain a decomposition example.
- What Is Bigdata? Describe the main features of a big data in detail.

Q.6 Attempt any One.**06**

- Construct appropriate tales for the ER diagram.



E-R diagram for a Car-insurance company

- What is the need for indexing? Explain primary, clustering and secondary index.

Q.7 Attempt the following.**06**

What is Transaction? Explain ACID properties of Transaction in details.

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What are the names of the various color image processing categories?
 - a) Pseudo-color and Multi-color processing
 - b) Half-color and pseudo-color processing
 - c) Full-color and pseudo-color processing
 - d) Half-color and full-color processing
- 2) Which of the following image processing approaches is the fastest, most accurate, and flexible?

a) Photographic	b) Electronic
c) Digital	d) Optical
- 3) Which of the following is the abbreviation of JPEG?
 - a) Joint Photographic Experts Group
 - b) Joint Photographs Expansion Group
 - c) Joint Photographic Expanded Group
 - d) Joint Photographic Expansion Group
- 4) Which of the following is/are considered as type(s) of lowpass filters?

a) Ideal	b) Butterworth
c) Gaussian	d) All of the mentioned
- 5) A continuous image is digitised at _____ points.

a) random	b) vertex
c) contour	d) sampling
- 6) The most familiar single sensor used for Image Acquisition is _____.

a) Microdensitometer	b) Photodiode
c) CMOS	d) None of the Mentioned
- 7) What is the method that is used to generate a processed image that have a specified histogram?

a) Histogram linearization	b) Histogram equalization
c) Histogram matching	d) Histogram processing

- 8) Gaussian shape function has no _____.
a) ones b) zeros
c) pixels d) coordinates
- 9) Streaming stored audio/video, files are compressed and stored on a _____.
a) IP b) Server
c) Domain d) Internet
- 10) What are the method for estimation of optical flow?
a) Bayesian method.
b) Gibbs random field motion estimation.
c) Optical flow equation and Second order derivatives of optical flow field.
d) All of above.
- 11) Scanner incorporates a special sort of camera which is made up of _____.
a) Sensor b) Chip
c) laser light d) charged coupled device
- 12) Purpose of restoration is to gain _____.
a) degraded image b) original image
c) pixels d) coordinates
- 13) Which of the following is method of estimating the degradation function?
a) Image observation b) Experimentation
c) Mathematical modeling d) All of above
- 14) 2-D motion, also called _____.
a) Rejected motion b) Projected motion
c) Optical flow motion d) None

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever and mention it clearly.

Section – I

- Q.2 Attempt any Four** **16**
- a) Explain in detail sampling and quantization.
 - b) Explain with neat diagram gray level slicing & bit plane slicing.
 - c) Explain Dilation & erosion with Example.
 - d) Explain Discrete Cosine Transform.
 - e) Explain Point, line and edge detection.
- Q.3 Attempt any Two** **12**
- a) Explain Gaussian and Butterworth filters for smoothing and sharpening.
 - b) Explain opening and closing with example.
 - c) Explain Averaging filters, order statistics filters in detail.

Section – II

- Q.4 Attempt any Four** **16**
- a) What are the types of noise models.
 - b) Explain method of Digital video quality measure.
 - c) Explain motion estimation criteria.
 - d) Draw Hierarchical blocks matching Algorithms and explain.
 - e) Explain interlaced scanning in video signals.
- Q.5 Attempt any Two** **12**
- a) Explain restoration using Weiner filters and Inverse filters.
 - b) Explain in detail with one example sampling in two dimensions and three dimensions.
 - c) Difference between 2-D motion Vs optical flow

- 9) Which of the following image processing approaches is the fastest, most accurate, and flexible?
- a) Photographic
 - b) Electronic
 - c) Digital
 - d) Optical
- 10) Which of the following is the abbreviation of JPEG?
- a) Joint Photographic Experts Group
 - b) Joint Photographs Expansion Group
 - c) Joint Photographic Expanded Group
 - d) Joint Photographic Expansion Group
- 11) Which of the following is/are considered as type(s) of lowpass filters?
- a) Ideal
 - b) Butterworth
 - c) Gaussian
 - d) All of the mentioned
- 12) A continuous image is digitised at _____ points.
- a) random
 - b) vertex
 - c) contour
 - d) sampling
- 13) The most familiar single sensor used for Image Acquisition is _____.
- a) Microdensitometer
 - b) Photodiode
 - c) CMOS
 - d) None of the Mentioned
- 14) What is the method that is used to generate a processed image that have a specified histogram?
- a) Histogram linearization
 - b) Histogram equalization
 - c) Histogram matching
 - d) Histogram processing

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever and mention it clearly.

Section – I

- Q.2 Attempt any Four** **16**
- a) Explain in detail sampling and quantization.
 - b) Explain with neat diagram gray level slicing & bit plane slicing.
 - c) Explain Dilation & erosion with Example.
 - d) Explain Discrete Cosine Transform.
 - e) Explain Point, line and edge detection.
- Q.3 Attempt any Two** **12**
- a) Explain Gaussian and Butterworth filters for smoothing and sharpening.
 - b) Explain opening and closing with example.
 - c) Explain Averaging filters, order statistics filters in detail.

Section – II

- Q.4 Attempt any Four** **16**
- a) What are the types of noise models.
 - b) Explain method of Digital video quality measure.
 - c) Explain motion estimation criteria.
 - d) Draw Hierarchical blocks matching Algorithms and explain.
 - e) Explain interlaced scanning in video signals.
- Q.5 Attempt any Two** **12**
- a) Explain restoration using Weiner filters and Inverse filters.
 - b) Explain in detail with one example sampling in two dimensions and three dimensions.
 - c) Difference between 2-D motion Vs optical flow

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data wherever and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.**14**

- 1) Scanner incorporates a special sort of camera which is made up of _____.
a) Sensor
b) Chip
c) laser light
d) charged coupled device
- 2) Purpose of restoration is to gain _____.
a) degraded image
b) original image
c) pixels
d) coordinates
- 3) Which of the following is method of estimating the degradation function?
a) Image observation
b) Experimentation
c) Mathematical modeling
d) All of above
- 4) 2-D motion, also called _____.
a) Rejected motion
b) Projected motion
c) Optical flow motion
d) None
- 5) What are the names of the various color image processing categories?
a) Pseudo-color and Multi-color processing
b) Half-color and pseudo-color processing
c) Full-color and pseudo-color processing
d) Half-color and full-color processing
- 6) Which of the following image processing approaches is the fastest, most accurate, and flexible?
a) Photographic
b) Electronic
c) Digital
d) Optical
- 7) Which of the following is the abbreviation of JPEG?
a) Joint Photographic Experts Group
b) Joint Photographs Expansion Group
c) Joint Photographic Expanded Group
d) Joint Photographic Expansion Group
- 8) Which of the following is/are considered as type(s) of lowpass filters?
a) Ideal
b) Butterworth
c) Gaussian
d) All of the mentioned

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever and mention it clearly.

Section – I

- Q.2 Attempt any Four** **16**
- a) Explain in detail sampling and quantization.
 - b) Explain with neat diagram gray level slicing & bit plane slicing.
 - c) Explain Dilation & erosion with Example.
 - d) Explain Discrete Cosine Transform.
 - e) Explain Point, line and edge detection.
- Q.3 Attempt any Two** **12**
- a) Explain Gaussian and Butterworth filters for smoothing and sharpening.
 - b) Explain opening and closing with example.
 - c) Explain Averaging filters, order statistics filters in detail.

Section – II

- Q.4 Attempt any Four** **16**
- a) What are the types of noise models.
 - b) Explain method of Digital video quality measure.
 - c) Explain motion estimation criteria.
 - d) Draw Hierarchical blocks matching Algorithms and explain.
 - e) Explain interlaced scanning in video signals.
- Q.5 Attempt any Two** **12**
- a) Explain restoration using Wiener filters and Inverse filters.
 - b) Explain in detail with one example sampling in two dimensions and three dimensions.
 - c) Difference between 2-D motion Vs optical flow

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever and mention it clearly.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. 14

- 1) The most familiar single sensor used for Image Acquisition is _____.
 a) Microdensitometer b) Photodiode
 c) CMOS d) None of the Mentioned
- 2) What is the method that is used to generate a processed image that have a specified histogram?
 a) Histogram linearization b) Histogram equalization
 c) Histogram matching d) Histogram processing
- 3) Gaussian shape function has no _____.
 a) ones b) zeros
 c) pixels d) coordinates
- 4) Streaming stored audio/video, files are compressed and stored on a _____.
 a) IP b) Server
 c) Domain d) Internet
- 5) What are the method for estimation of optical flow?
 a) Bayesian method.
 b) Gibbs random field motion estimation.
 c) Optical flow equation and Second order derivatives of optical flow field.
 d) All of above.
- 6) Scanner incorporates a special sort of camera which is made up of _____.
 a) Sensor b) Chip
 c) laser light d) charged coupled device
- 7) Purpose of restoration is to gain _____.
 a) degraded image b) original image
 c) pixels d) coordinates
- 8) Which of the following is method of estimating the degradation function?
 a) Image observation b) Experimentation
 c) Mathematical modeling d) All of above

- 9) 2-D motion, also called _____.
a) Rejected motion b) Projected motion
c) Optical flow motion d) None
- 10) What are the names of the various color image processing categories?
a) Pseudo-color and Multi-color processing
b) Half-color and pseudo-color processing
c) Full-color and pseudo-color processing
d) Half-color and full-color processing
- 11) Which of the following image processing approaches is the fastest, most accurate, and flexible?
a) Photographic b) Electronic
c) Digital d) Optical
- 12) Which of the following is the abbreviation of JPEG?
a) Joint Photographic Experts Group
b) Joint Photographs Expansion Group
c) Joint Photographic Expanded Group
d) Joint Photographic Expansion Group
- 13) Which of the following is/are considered as type(s) of lowpass filters?
a) Ideal b) Butterworth
c) Gaussian d) All of the mentioned
- 14) A continuous image is digitised at _____ points.
a) random b) vertex
c) contour d) sampling

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Image & Video Processing (197044707)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever and mention it clearly.

Section – I

- Q.2 Attempt any Four** **16**
- a) Explain in detail sampling and quantization.
 - b) Explain with neat diagram gray level slicing & bit plane slicing.
 - c) Explain Dilation & erosion with Example.
 - d) Explain Discrete Cosine Transform.
 - e) Explain Point, line and edge detection.
- Q.3 Attempt any Two** **12**
- a) Explain Gaussian and Butterworth filters for smoothing and sharpening.
 - b) Explain opening and closing with example.
 - c) Explain Averaging filters, order statistics filters in detail.

Section – II

- Q.4 Attempt any Four** **16**
- a) What are the types of noise models.
 - b) Explain method of Digital video quality measure.
 - c) Explain motion estimation criteria.
 - d) Draw Hierarchical blocks matching Algorithms and explain.
 - e) Explain interlaced scanning in video signals.
- Q.5 Attempt any Two** **12**
- a) Explain restoration using Weiner filters and Inverse filters.
 - b) Explain in detail with one example sampling in two dimensions and three dimensions.
 - c) Difference between 2-D motion Vs optical flow

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

- 1) WSN are _____ dispersed.

a) Spatially	b) Specially
c) Equivalently	d) None
- 2) Following are application areas of wireless sensor network _____.
 - a) Asset and warehouse management
 - b) Automotive
 - c) Building monitoring and control
 - d) All of above
- 3) They can even use other services such as location tracking using the _____.

a) GPS	b) VPS
c) GPRS	d) GSM
- 4) WSN is built with _____.

a) Switches	b) Nodes
c) Wires	d) Radio
- 5) A radio transceiver in WSN contains which component internally?

a) Antenna	b) Wire
c) Electrode	d) None of the above
- 6) What is the routing algorithm used in MANETs?
 - a) Shortest Path First
 - b) Routing Information Protocol
 - c) Distance Vector Protocol
 - d) Ad hoc On -demand Distance vector protocol
- 7) The hidden terminal problem is known to degrade the throughput of wireless networks due to _____.

a) route break	b) transmission rate
c) delay time	d) collisions
- 8) A sensor node with a processing unit has _____ memory.

a) Limited	b) Minimum
c) Maximum	d) None

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following** **16**
- a) What are the characteristics requirements of wireless sensor networks?
 - b) Explain various hardware components of single node architecture?
 - c) What are the various services offered by the localization?
 - d) Explain about time synchronization mechanism in wireless sensor network.
 - e) What is wireless sensor network explain in detail architecture?
 - f) Differentiate between active and passive sensors.
- Q.3 Attempt any two of the following** **12**
- a) Write a Note On
 - i) Dynamic energy and power management.
 - ii) Tiny OS
 - iii) Programming models in wireless sensor network.
 - b) What are the various applications of WSN? Explain any two in detail.
 - c) Explain in detail about the different topology control mechanism.

Section – II

- Q.4 Attempt any four of the following** **16**
- a) Explain anyone schedule best protocol.
 - b) What are the characteristics of IEEE 802.15.4?
 - c) What are the different aspects of EMC?
 - d) Explain use of MAC protocols in directional antennas.
 - e) What are the applications of WSN?
 - f) Explain use of WSN in medical applications.
- Q.5 Attempt any two of the following** **12**
- a) Explain concept of low duty cycle in MAC protocol.
 - b) Explain in brief to contention best protocols.
 - c) What are military applications of WSN?

Seat No.	
----------	--

Set	Q
-----	---

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) A sensor node with a processing unit has _____ memory.
 - a) Limited
 - b) Minimum
 - c) Maximum
 - d) None
- 2) Additional components of WSN are _____.
 - a) ASICs
 - b) RS232
 - c) USB
 - d) All the above
- 3) WSN communicates with _____ via gateway.
 - a) LAN
 - b) WAN
 - c) Both a and b
 - d) None of the above
- 4) Clock Parameters are _____.
 - a) Clock rate
 - b) Clock offset
 - c) Clock skew
 - d) All of the above
- 5) LEACH is example of _____.
 - a) Contention
 - b) Schedule
 - c) RFID
 - d) None of the above
- 6) Contention-Based Protocols focuses on _____.
 - a) Bandwidth reservation
 - b) Packet scheduling
 - c) Both a) and b)
 - d) None of these.
- 7) WSN in data logging _____ the data.
 - a) Collects
 - b) Monitors
 - c) Distributes
 - d) None of the above
- 8) WSN are _____ dispersed.
 - a) Spatially
 - b) Specially
 - c) Equivalently
 - d) None

- 9) Following are application areas of wireless sensor network _____.
a) Asset and warehouse management
b) Automotive
c) Building monitoring and control
d) All of above
- 10) They can even use other services such as location tracking using the _____.
a) GPS
b) VPS
c) GPRS
d) GSM
- 11) WSN is built with _____.
a) Switches
b) Nodes
c) Wires
d) Radio
- 12) A radio transceiver in WSN contains which component internally?
a) Antenna
b) Wire
c) Electrode
d) None of the above
- 13) What is the routing algorithm used in MANETs?
a) Shortest Path First
b) Routing Information Protocol
c) Distance Vector Protocol
d) Ad hoc On-demand Distance vector protocol
- 14) The hidden terminal problem is known to degrade the throughput of wireless networks due to _____.
a) route break
b) transmission rate
c) delay time
d) collisions

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following** **16**
- a) What are the characteristics requirements of wireless sensor networks?
 - b) Explain various hardware components of single node architecture?
 - c) What are the various services offered by the localization?
 - d) Explain about time synchronization mechanism in wireless sensor network.
 - e) What is wireless sensor network explain in detail architecture?
 - f) Differentiate between active and passive sensors.
- Q.3 Attempt any two of the following** **12**
- a) Write a Note On
 - i) Dynamic energy and power management.
 - ii) Tiny OS
 - iii) Programming models in wireless sensor network.
 - b) What are the various applications of WSN? Explain any two in detail.
 - c) Explain in detail about the different topology control mechanism.

Section – II

- Q.4 Attempt any four of the following** **16**
- a) Explain anyone schedule best protocol.
 - b) What are the characteristics of IEEE 802.15.4?
 - c) What are the different aspects of EMC?
 - d) Explain use of MAC protocols in directional antennas.
 - e) What are the applications of WSN?
 - f) Explain use of WSN in medical applications.
- Q.5 Attempt any two of the following** **12**
- a) Explain concept of low duty cycle in MAC protocol.
 - b) Explain in brief to contention best protocols.
 - c) What are military applications of WSN?

Seat No.	
----------	--

Set	R
-----	---

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) Clock Parameters are _____.
 - a) Clock rate
 - b) Clock offset
 - c) Clock skew
 - d) All of the above
- 2) LEACH is example of _____.
 - a) Contention
 - b) Schedule
 - c) RFID
 - d) None of the above
- 3) Contention-Based Protocols focuses on _____.
 - a) Bandwidth reservation
 - b) Packet scheduling
 - c) Both a) and b)
 - d) None of these.
- 4) WSN in data logging _____ the data.
 - a) Collects
 - b) Monitors
 - c) Distributes
 - d) None of the above
- 5) WSN are _____ dispersed.
 - a) Spatially
 - b) Specially
 - c) Equivalently
 - d) None
- 6) Following are application areas of wireless sensor network _____.
 - a) Asset and warehouse management
 - b) Automotive
 - c) Building monitoring and control
 - d) All of above
- 7) They can even use other services such as location tracking using the _____.
 - a) GPS
 - b) VPS
 - c) GPRS
 - d) GSM
- 8) WSN is built with _____.
 - a) Switches
 - b) Nodes
 - c) Wires
 - d) Radio

- 9) A radio transceiver in WSN contains which component internally?
a) Antenna
b) Wire
c) Electrode
d) None of the above
- 10) What is the routing algorithm used in MANETs?
a) Shortest Path First
b) Routing Information Protocol
c) Distance Vector Protocol
d) Ad hoc On-demand Distance vector protocol
- 11) The hidden terminal problem is known to degrade the throughput of wireless networks due to _____.
a) route break
b) transmission rate
c) delay time
d) collisions
- 12) A sensor node with a processing unit has _____ memory.
a) Limited
b) Minimum
c) Maximum
d) None
- 13) Additional components of WSN are _____.
a) ASICs
b) RS232
c) USB
d) All the above
- 14) WSN communicates with _____ via gateway.
a) LAN
b) WAN
c) Both a and b
d) None of the above

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four of the following **16**

- a) What are the characteristics requirements of wireless sensor networks?
- b) Explain various hardware components of single node architecture?
- c) What are the various services offered by the localization?
- d) Explain about time synchronization mechanism in wireless sensor network.
- e) What is wireless sensor network explain in detail architecture?
- f) Differentiate between active and passive sensors.

Q.3 Attempt any two of the following **12**

- a) Write a Note On
 - i) Dynamic energy and power management.
 - ii) Tiny OS
 - iii) Programming models in wireless sensor network.
- b) What are the various applications of WSN? Explain any two in detail.
- c) Explain in detail about the different topology control mechanism.

Section – II

Q.4 Attempt any four of the following **16**

- a) Explain anyone schedule best protocol.
- b) What are the characteristics of IEEE 802.15.4?
- c) What are the different aspects of EMC?
- d) Explain use of MAC protocols in directional antennas.
- e) What are the applications of WSN?
- f) Explain use of WSN in medical applications.

Q.5 Attempt any two of the following **12**

- a) Explain concept of low duty cycle in MAC protocol.
- b) Explain in brief to contention best protocols.
- c) What are military applications of WSN?

Seat No.	
----------	--

Set	S
-----	---

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the routing algorithm used in MANETs?
 - a) Shortest Path First
 - b) Routing Information Protocol
 - c) Distance Vector Protocol
 - d) Ad hoc On -demand Distance vector protocol
- 2) The hidden terminal problem is known to degrade the throughput of wireless networks due to _____.
 - a) route break
 - b) transmission rate
 - c) delay time
 - d) collisions
- 3) A sensor node with a processing unit has _____ memory.
 - a) Limited
 - b) Minimum
 - c) Maximum
 - d) None
- 4) Additional components of WSN are _____.
 - a) ASICs
 - b) RS232
 - c) USB
 - d) All the above
- 5) WSN communicates with _____ via gateway.
 - a) LAN
 - b) WAN
 - c) Both a and b
 - d) None of the above
- 6) Clock Parameters are _____.
 - a) Clock rate
 - b) Clock offset
 - c) Clock skew
 - d) All of the above
- 7) LEACH is example of _____.
 - a) Contention
 - b) Schedule
 - c) RFID
 - d) None of the above
- 8) Contention-Based Protocols focuses on _____.
 - a) Bandwidth reservation
 - b) Packet scheduling
 - c) Both a) and b)
 - d) None of these.

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Network (197044708)

Day & Date: Sunday, 19-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following** **16**
- a) What are the characteristics requirements of wireless sensor networks?
 - b) Explain various hardware components of single node architecture?
 - c) What are the various services offered by the localization?
 - d) Explain about time synchronization mechanism in wireless sensor network.
 - e) What is wireless sensor network explain in detail architecture?
 - f) Differentiate between active and passive sensors.
- Q.3 Attempt any two of the following** **12**
- a) Write a Note On
 - i) Dynamic energy and power management.
 - ii) Tiny OS
 - iii) Programming models in wireless sensor network.
 - b) What are the various applications of WSN? Explain any two in detail.
 - c) Explain in detail about the different topology control mechanism.

Section – II

- Q.4 Attempt any four of the following** **16**
- a) Explain anyone schedule best protocol.
 - b) What are the characteristics of IEEE 802.15.4?
 - c) What are the different aspects of EMC?
 - d) Explain use of MAC protocols in directional antennas.
 - e) What are the applications of WSN?
 - f) Explain use of WSN in medical applications.
- Q.5 Attempt any two of the following** **12**
- a) Explain concept of low duty cycle in MAC protocol.
 - b) Explain in brief to contention best protocols.
 - c) What are military applications of WSN?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) A Sensor Network must contain _____.
 - a) Battery
 - b) Communication Network
 - c) Memory
 - d) All of above
- 2) What are the application areas of WSN?
 - a) Warehouse Management
 - b) Automobile
 - c) Healthcare
 - d) All of above
- 3) AD-hoc Mode of WSN is known as _____ mode.
 - a) router
 - b) roaming
 - c) infrastructure
 - d) digital
- 4) Each Sensor Node is equipped with _____.
 - a) Only one sensing device
 - b) One or more sensing devices
 - c) Only more than one sensing device
 - d) No sensing devices attached
- 5) The challenges we faced in designing WSN system and applications including _____.
 - a) limited hardware
 - b) limited support for network
 - c) limited sources for software development
 - d) All of above
- 6) Malware means _____.
 - a) small software
 - b) instruction
 - c) block diagram
 - d) none
- 7) RFID Consists of _____.
 - a) RFID Reader
 - b) RFID Tag
 - c) Both a and b
 - d) None
- 8) What are the different kinds of RFID tags _____.
 - a) Active
 - b) Passive
 - c) Semi-Passive
 - d) All of above

- 9) Which RFID Tag has don't have its own power supply _____.
- a) Active
 - b) Passive
 - c) Semi-Passive
 - d) All of above
- 10) The directivity of an isotropic antenna is equal to _____.
- a) zero
 - b) infinity
 - c) one
 - d) None of these

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two of the following. 08**
- a) Explain the challenges of Wireless Sensor Networks.
 - b) Explain Hardware components of Single Node architecture with suitable diagram.
 - c) Explain the Operating System for WSN.
- Q.3 Attempt any two of the following. 12**
- a) For Sensor Network Scenario, explain Single Hop and multiple Hop networks.
 - b) Explain Wireless sensor Network with suitable diagram.
 - c) Explain the applications of Wireless Sensor Networks.

Section – II

- Q.4 Attempt any two of the following. 08**
- a) Explain MAC layer in WSN.
 - b) Why energy management is required in WSN.
 - c) Explain RFID with suitable diagram.
- Q.5 Attempt any two of the following. 12**
- a) Explain Application of RFID in healthcare application with suitable example.
 - b) Explain the Aspects of EMC.
 - c) What is malicious Node? Explain it.

- 10)** The challenges we faced in designing WSN system and applications including _____.
- a) limited hardware
 - b) limited support for network
 - c) limited sources for software development
 - d) All of above

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two of the following. 08**
- a) Explain the challenges of Wireless Sensor Networks.
 - b) Explain Hardware components of Single Node architecture with suitable diagram.
 - c) Explain the Operating System for WSN.
- Q.3 Attempt any two of the following. 12**
- a) For Sensor Network Scenario, explain Single Hop and multiple Hop networks.
 - b) Explain Wireless sensor Network with suitable diagram.
 - c) Explain the applications of Wireless Sensor Networks.

Section – II

- Q.4 Attempt any two of the following. 08**
- a) Explain MAC layer in WSN.
 - b) Why energy management is required in WSN.
 - c) Explain RFID with suitable diagram.
- Q.5 Attempt any two of the following. 12**
- a) Explain Application of RFID in healthcare application with suitable example.
 - b) Explain the Aspects of EMC.
 - c) What is malicious Node? Explain it.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)**

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Which RFID Tag has don't have its own power supply _____.
 - a) Active
 - b) Passive
 - c) Semi-Passive
 - d) All of above
- 2) The directivity of an isotropic antenna is equal to _____.
 - a) zero
 - b) infinity
 - c) one
 - d) None of these
- 3) A Sensor Network must contain _____.
 - a) Battery
 - b) Communication Network
 - c) Memory
 - d) All of above
- 4) What are the application areas of WSN?
 - a) Warehouse Management
 - b) Automobile
 - c) Healthcare
 - d) All of above
- 5) AD-hoc Mode of WSN is known as _____ mode.
 - a) router
 - b) roaming
 - c) infrastructure
 - d) digital
- 6) Each Sensor Node is equipped with _____.
 - a) Only one sensing device
 - b) One or more sensing devices
 - c) Only more than one sensing device
 - d) No sensing devices attached
- 7) The challenges we faced in designing WSN system and applications including _____.
 - a) limited hardware
 - b) limited support for network
 - c) limited sources for software development
 - d) All of above
- 8) Malware means _____.
 - a) small software
 - b) instruction
 - c) block diagram
 - d) none

- 9)** RFID Consists of _____.
- | | |
|-----------------|-------------|
| a) RFID Reader | b) RFID Tag |
| c) Both a and b | d) None |
- 10)** What are the different kinds of RFID tags _____.
- | | |
|-----------------|-----------------|
| a) Active | b) Passive |
| c) Semi-Passive | d) All of above |

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two of the following. 08**
- a) Explain the challenges of Wireless Sensor Networks.
 - b) Explain Hardware components of Single Node architecture with suitable diagram.
 - c) Explain the Operating System for WSN.
- Q.3 Attempt any two of the following. 12**
- a) For Sensor Network Scenario, explain Single Hop and multiple Hop networks.
 - b) Explain Wireless sensor Network with suitable diagram.
 - c) Explain the applications of Wireless Sensor Networks.

Section – II

- Q.4 Attempt any two of the following. 08**
- a) Explain MAC layer in WSN.
 - b) Why energy management is required in WSN.
 - c) Explain RFID with suitable diagram.
- Q.5 Attempt any two of the following. 12**
- a) Explain Application of RFID in healthcare application with suitable example.
 - b) Explain the Aspects of EMC.
 - c) What is malicious Node? Explain it.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) AD-hoc Mode of WSN is known as _____ mode.
 - a) router
 - b) roaming
 - c) infrastructure
 - d) digital
- 2) Each Sensor Node is equipped with _____.
 - a) Only one sensing device
 - b) One or more sensing devices
 - c) Only more than one sensing device
 - d) No sensing devices attached
- 3) The challenges we faced in designing WSN system and applications including _____.
 - a) limited hardware
 - b) limited support for network
 - c) limited sources for software development
 - d) All of above
- 4) Malware means _____.
 - a) small software
 - b) instruction
 - c) block diagram
 - d) none
- 5) RFID Consists of _____.
 - a) RFID Reader
 - b) RFID Tag
 - c) Both a and b
 - d) None
- 6) What are the different kinds of RFID tags _____.
 - a) Active
 - b) Passive
 - c) Semi-Passive
 - d) All of above
- 7) Which RFID Tag has don't have its own power supply _____.
 - a) Active
 - b) Passive
 - c) Semi-Passive
 - d) All of above
- 8) The directivity of an isotropic antenna is equal to _____.
 - a) zero
 - b) infinity
 - c) one
 - d) None of these

- 9)** A Sensor Network must contain _____.
- | | |
|------------|--------------------------|
| a) Battery | b) Communication Network |
| c) Memory | d) All of above |
- 10)** What are the application areas of WSN?
- | | |
|-------------------------|-----------------|
| a) Warehouse Management | b) Automobile |
| c) Healthcare | d) All of above |

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Wireless Sensor Networks (BTN06802)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two of the following. 08**
- a) Explain the challenges of Wireless Sensor Networks.
 - b) Explain Hardware components of Single Node architecture with suitable diagram.
 - c) Explain the Operating System for WSN.
- Q.3 Attempt any two of the following. 12**
- a) For Sensor Network Scenario, explain Single Hop and multiple Hop networks.
 - b) Explain Wireless sensor Network with suitable diagram.
 - c) Explain the applications of Wireless Sensor Networks.

Section – II

- Q.4 Attempt any two of the following. 08**
- a) Explain MAC layer in WSN.
 - b) Why energy management is required in WSN.
 - c) Explain RFID with suitable diagram.
- Q.5 Attempt any two of the following. 12**
- a) Explain Application of RFID in healthcare application with suitable example.
 - b) Explain the Aspects of EMC.
 - c) What is malicious Node? Explain it.

- 8) The carrier to noise ratio for a satellite depends upon _____.
- a) Effective Isotropic Radiated power
 - b) Bandwidth
 - c) Free space path losses
 - d) All of them
- 9) What is sidereal time?
- a) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - b) Sidereal time is time measured relative to the variable stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - c) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the moon. This is because the earth moves in its orbit around the moon.
 - d) None of above
- 10) What is an EIRP?
- a) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed to the antenna input.
 - b) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed from the antenna output.
 - c) Either a or b
 - d) None of above

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any two of the following. 08

- a) Explain the Three Kepler Law of motion.
- b) Write a note on atmospheric Losses.
- c) Explain the Antenna look angles for satellite with a neat diagram.

Q.3 Attempt any two of the following. 12

- a) Explain in details Polar orbiting satellite.
- b) Write a note on Rain attenuation and other propagation Impairments for satellite.
- c) Explain the different Launching orbits of ISRO.

Section – II

Q.4 Attempt any two of the following. 08

- a) Explain the Spin satellite Stabilization Process.
- b) Write a note on different Transmission Losses.
- c) What is significant of Carrier to noise ratio in Link budget design explain in brief?

Q.5 Attempt any two of the following. 12

- a) Explain how to calculate the Link Power Budget for both uplink and downlink.
- b) Write a brief note on TT&C Sub-system of satellite.
- c) Explain Receive only Home TV system.

Seat No.	
-----------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Calculate the radius of a circular orbit for which the period is 1 day?
 - a) 42.241 Km
 - b) 42.241 m
 - c) 4.241 Km
 - d) 2.241 Km
- 2) Ascending node?
 - a) The point longest from earth
 - b) The point closest approach to earth
 - c) The point where the orbit crosses the equatorial plane going from south to north
 - d) None of the above
- 3) The carrier to noise ratio for a satellite depends upon _____.
 - a) Effective Isotropic Radiated power
 - b) Bandwidth
 - c) Free space path losses
 - d) All of them
- 4) What is sidereal time?
 - a) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - b) Sidereal time is time measured relative to the variable stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - c) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the moon. This is because the earth moves in its orbit around the moon.
 - d) None of above

- 5) What is an EIRP?
- a) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed to the antenna input.
 - b) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed from the antenna output.
 - c) Either a or b
 - d) None of above
- 6) The Height of Geostationary satellite is _____.
- a) 35930 Km
 - b) 45930
 - c) 55930
 - d) none of above
- 7) With reference to satellite orbit the perigee is _____.
- a) Point in an intermediate orbit
 - b) Highest point in the orbit
 - c) Lowest Point in orbit
 - d) None of above
- 8) A television (TV) transmission is an example of which type of transmission?
- a) Simplex
 - b) Half duplex
 - c) Full duplex
 - d) None of the above
- 9) INTELSAT stands?
- a) International Telecommunications Satellite
 - b) India Telecommunications Satellite
 - c) Inter Telecommunications Satellite
 - d) None of the above
- 10) For an elliptical orbit?
- a) $e < 0$
 - b) $0 < e < 1$
 - c) $e = 1$
 - d) None of the above

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any two of the following. 08

- a) Explain the Three Kepler Law of motion.
- b) Write a note on atmospheric Losses.
- c) Explain the Antenna look angles for satellite with a neat diagram.

Q.3 Attempt any two of the following. 12

- a) Explain in details Polar orbiting satellite.
- b) Write a note on Rain attenuation and other propagation Impairments for satellite.
- c) Explain the different Launching orbits of ISRO.

Section – II

Q.4 Attempt any two of the following. 08

- a) Explain the Spin satellite Stabilization Process.
- b) Write a note on different Transmission Losses.
- c) What is significant of Carrier to noise ratio in Link budget design explain in brief?

Q.5 Attempt any two of the following. 12

- a) Explain how to calculate the Link Power Budget for both uplink and downlink.
- b) Write a brief note on TT&C Sub-system of satellite.
- c) Explain Receive only Home TV system.

Seat No.	
-----------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) What is sidereal time?
 - a) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - b) Sidereal time is time measured relative to the variable stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - c) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the moon. This is because the earth moves in its orbit around the moon.
 - d) None of above
- 2) What is an EIRP?
 - a) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed to the antenna input.
 - b) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed from the antenna output.
 - c) Either a or b
 - d) None of above
- 3) The Height of Geostationary satellite is _____.

a) 35930 Km	b) 45930
c) 55930	d) none of above
- 4) With reference to satellite orbit the perigee is _____.
 - a) Point in an intermediate orbit
 - b) Highest point in the orbit
 - c) Lowest Point in orbit
 - d) None of above
- 5) A television (TV) transmission is an example of which type of transmission?

a) Simplex	b) Half duplex
c) Full duplex	d) None of the above

- 6) INTELSAT stands?
- a) International Telecommunications Satellite
 - b) India Telecommunications Satellite
 - c) Inter Telecommunications Satellite
 - d) None of the above
- 7) For an elliptical orbit?
- a) $e < 0$
 - b) $0 < e < 1$
 - c) $e = 1$
 - d) None of the above
- 8) Calculate the radius of a circular orbit for which the period is 1 day?
- a) 42.241 Km
 - b) 42.241 m
 - c) 4.241 Km
 - d) 2.241 Km
- 9) Ascending node?
- a) The point longest from earth
 - b) The point closest approach to earth
 - c) The point where the orbit crosses the equatorial plane going from south to north
 - d) None of the above
- 10) The carrier to noise ratio for a satellite depends upon _____.
- a) Effective Isotropic Radiated power
 - b) Bandwidth
 - c) Free space path losses
 - d) All of them

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any two of the following. 08

- a) Explain the Three Kepler Law of motion.
- b) Write a note on atmospheric Losses.
- c) Explain the Antenna look angles for satellite with a neat diagram.

Q.3 Attempt any two of the following. 12

- a) Explain in details Polar orbiting satellite.
- b) Write a note on Rain attenuation and other propagation Impairments for satellite.
- c) Explain the different Launching orbits of ISRO.

Section – II

Q.4 Attempt any two of the following. 08

- a) Explain the Spin satellite Stabilization Process.
- b) Write a note on different Transmission Losses.
- c) What is significant of Carrier to noise ratio in Link budget design explain in brief?

Q.5 Attempt any two of the following. 12

- a) Explain how to calculate the Link Power Budget for both uplink and downlink.
- b) Write a brief note on TT&C Sub-system of satellite.
- c) Explain Receive only Home TV system.

Seat No.	
-------------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) A television (TV) transmission is an example of which type of transmission?
 - a) Simplex
 - b) Half duplex
 - c) Full duplex
 - d) None of the above
- 2) INTELSAT stands?
 - a) International Telecommunications Satellite
 - b) India Telecommunications Satellite
 - c) Inter Telecommunications Satellite
 - d) None of the above
- 3) For an elliptical orbit?
 - a) $e < 0$
 - b) $0 < e < 1$
 - c) $e = 1$
 - d) None of the above
- 4) Calculate the radius of a circular orbit for which the period is 1 day?
 - a) 42.241 Km
 - b) 42.241 m
 - c) 4.241 Km
 - d) 2.241 Km
- 5) Ascending node?
 - a) The point longest from earth
 - b) The point closest approach to earth
 - c) The point where the orbit crosses the equatorial plane going from south to north
 - d) None of the above
- 6) The carrier to noise ratio for a satellite depends upon _____.
 - a) Effective Isotropic Radiated power
 - b) Bandwidth
 - c) Free space path losses
 - d) All of them

- 7) What is sidereal time?
- a) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - b) Sidereal time is time measured relative to the variable stars. It will be seen that one complete rotation sidereal time relative to the sun .This is because the earth moves in its orbit around the sun.
 - c) Sidereal time is time measured relative to the fixed stars. It will be seen that one complete rotation sidereal time relative to the moon. This is because the earth moves in its orbit around the moon.
 - d) None of above
- 8) What is an EIRP?
- a) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed to the antenna input.
 - b) It is a measure of radiated or transmitted power of an antenna. It can be completed from the antenna gain & the power fed from the antenna output.
 - c) Either a or b
 - d) None of above
- 9) The Height of Geostationary satellite is _____.
- a) 35930 Km
 - b) 45930
 - c) 55930
 - d) none of above
- 10) With reference to satellite orbit the perigee is _____.
- a) Point in an intermediate orbit
 - b) Highest point in the orbit
 - c) Lowest Point in orbit
 - d) None of above

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Satellite Communication (BTN06803)**

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any two of the following. 08

- a) Explain the Three Kepler Law of motion.
- b) Write a note on atmospheric Losses.
- c) Explain the Antenna look angles for satellite with a neat diagram.

Q.3 Attempt any two of the following. 12

- a) Explain in details Polar orbiting satellite.
- b) Write a note on Rain attenuation and other propagation Impairments for satellite.
- c) Explain the different Launching orbits of ISRO.

Section – II

Q.4 Attempt any two of the following. 08

- a) Explain the Spin satellite Stabilization Process.
- b) Write a note on different Transmission Losses.
- c) What is significant of Carrier to noise ratio in Link budget design explain in brief?

Q.5 Attempt any two of the following. 12

- a) Explain how to calculate the Link Power Budget for both uplink and downlink.
- b) Write a brief note on TT&C Sub-system of satellite.
- c) Explain Receive only Home TV system.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) EV and HEV has following components common except _____.
 - a) Battery
 - b) ECU
 - c) Generator
 - d) Internal Combustion Engine
- 2) A Plug-in Hybrid EV is different from Conventional Hybrid EV because it has _____.
 - a) Built in Battery Charger
 - b) Li Ox battery
 - c) more batteries
 - d) Bigger motor generator
- 3) EVSE stands for _____.
 - a) Electrical Vehicle Supply Equipment
 - b) Could be AC or DC
 - c) Used for charging
 - d) All
- 4) Latest EV launched by TATA motors _____.
 - a) Tigor EV
 - b) Kona
 - c) Chetak
 - d) Nexon EV
- 5) What affect do petrol and diesel engines have on the environment?
 - a) They help deplete natural resources and contribute to increasing CO₂ emissions
 - b) They help deplete natural resources and reduce CO₂ emissions
 - c) They contribute to increasing CO₂ emissions but help reduce global warming
 - d) None all of above
- 6) This battery is not suitable for EVs _____.
 - a) Li ion battery
 - b) Na Ni Cl battery
 - c) NaS battery
 - d) Lead Acid Battery
- 7) There are _____ methods of battery charging.
 - a) Three
 - b) Two
 - c) One
 - d) Four

- 8) Active Safety includes _____.
- a) Anti-Lock Breaking System (ABS)
 - b) Air bags
 - c) Headrest
 - d) All
- 9) Which of the following is common voltage of Battery?
- a) 2 V
 - b) 10 V
 - c) 12 V
 - d) 25 V
- 10) Which of the following is provided to charge the battery constantly?
- a) Generator
 - b) ECU
 - c) Ignition coil
 - d) Fuse box

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two. 08**
a) Explain the Types of EVs.
b) Compare Patrol/ Diesel Vehicle and Electrical Vehicle.
c) Explain Brushless DC Electric Motor.
- Q.3 Attempt any two. 12**
a) Draw and explain Hybrid Electrical Vehicle with suitable diagram.
b) Explain Construction and working of Permanent magnet synchronous Motors with suitable diagram.
c) Give details of leading companies in two and four wheeler for EVS.

Section – II

- Q.4 Attempt any two. 08**
a) Explain with suitable diagram about Lead acid battery.
b) Explain the terms regarding EV - Safety, Testing
c) Give the selection Criteria for EVs.
- Q.5 Attempt any two. 12**
a) Explain with suitable diagram about Lithium-Ion Battery Management Systems.
b) Explain with suitable diagram about charging station and its requirements.
c) Explain in general the charger technology used in EV battery charger.

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. **10**

- 1) This battery is not suitable for EVs _____.
 - a) Li ion battery
 - b) Na Ni Cl battery
 - c) NaS battery
 - d) Lead Acid Battery
- 2) There are _____ methods of battery charging.
 - a) Three
 - b) Two
 - c) One
 - d) Four
- 3) Active Safety includes _____.
 - a) Anti-Lock Breaking System (ABS)
 - b) Air bags
 - c) Headrest
 - d) All
- 4) Which of the following is common voltage of Battery?
 - a) 2 V
 - b) 10 V
 - c) 12 V
 - d) 25 V
- 5) Which of the following is provided to charge the battery constantly?
 - a) Generator
 - b) ECU
 - c) Ignition coil
 - d) Fuse box
- 6) EV and HEV has following components common except _____.
 - a) Battery
 - b) ECU
 - c) Generator
 - d) Internal Combustion Engine
- 7) A Plug-in Hybrid EV is different from Conventional Hybrid EV because it has _____.
 - a) Built in Battery Charger
 - b) Li Ox battery
 - c) more batteries
 - d) Bigger motor generator
- 8) EVSE stands for _____.
 - a) Electrical Vehicle Supply Equipment
 - b) Could be AC or DC
 - c) Used for charging
 - d) All

- 9) Latest EV launched by TATA motors _____.
- | | |
|-------------|-------------|
| a) Tigor EV | b) Kona |
| c) Chetak | d) Nexon EV |
- 10) What affect do petrol and diesel engines have on the environment?
- a) They help deplete natural resources and contribute to increasing CO₂ emissions
 - b) They help deplete natural resources and reduce CO₂ emissions
 - c) They contribute to increasing CO₂ emissions but help reduce global warming
 - d) None all of above

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two. 08**
a) Explain the Types of EVs.
b) Compare Petrol/ Diesel Vehicle and Electrical Vehicle.
c) Explain Brushless DC Electric Motor.
- Q.3 Attempt any two. 12**
a) Draw and explain Hybrid Electrical Vehicle with suitable diagram.
b) Explain Construction and working of Permanent magnet synchronous Motors with suitable diagram.
c) Give details of leading companies in two and four wheeler for EVs.

Section – II

- Q.4 Attempt any two. 08**
a) Explain with suitable diagram about Lead acid battery.
b) Explain the terms regarding EV - Safety, Testing
c) Give the selection Criteria for EVs.
- Q.5 Attempt any two. 12**
a) Explain with suitable diagram about Lithium-Ion Battery Management Systems.
b) Explain with suitable diagram about charging station and its requirements.
c) Explain in general the charger technology used in EV battery charger.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is common voltage of Battery?

a) 2 V	b) 10 V
c) 12 V	d) 25 V
- 2) Which of the following is provided to charge the battery constantly?

a) Generator	b) ECU
c) Ignition coil	d) Fuse box
- 3) EV and HEV has following components common except _____.

a) Battery	b) ECU
c) Generator	d) Internal Combustion Engine
- 4) A Plug-in Hybrid EV is different from Conventional Hybrid EV because it has _____.

a) Built in Battery Charger	b) Li Ox battery
c) more batteries	d) Bigger motor generator
- 5) EVSE stands for _____.

a) Electrical Vehicle Supply Equipment
b) Could be AC or DC
c) Used for charging
d) All
- 6) Latest EV launched by TATA motors _____.

a) Tigor EV	b) Kona
c) Chetak	d) Nexon EV
- 7) What affect do petrol and diesel engines have on the environment?

a) They help deplete natural resources and contribute to increasing CO ₂ emissions
b) They help deplete natural resources and reduce CO ₂ emissions
c) They contribute to increasing CO ₂ emissions but help reduce global warming
d) None all of above

- 8) This battery is not suitable for EVs _____.
- | | |
|-------------------|----------------------|
| a) Li ion battery | b) Na Ni Cl battery |
| c) NaS battery | d) Lead Acid Battery |
- 9) There are _____ methods of battery charging.
- | | |
|----------|---------|
| a) Three | b) Two |
| c) One | d) Four |
- 10) Active Safety includes _____.
- | |
|------------------------------------|
| a) Anti-Lock Breaking System (ABS) |
| b) Air bags |
| c) Headrest |
| d) All |

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two. 08**
a) Explain the Types of EVs.
b) Compare Patrol/ Diesel Vehicle and Electrical Vehicle.
c) Explain Brushless DC Electric Motor.
- Q.3 Attempt any two. 12**
a) Draw and explain Hybrid Electrical Vehicle with suitable diagram.
b) Explain Construction and working of Permanent magnet synchronous Motors with suitable diagram.
c) Give details of leading companies in two and four wheeler for EVs.

Section – II

- Q.4 Attempt any two. 08**
a) Explain with suitable diagram about Lead acid battery.
b) Explain the terms regarding EV - Safety, Testing
c) Give the selection Criteria for EVs.
- Q.5 Attempt any two. 12**
a) Explain with suitable diagram about Lithium-Ion Battery Management Systems.
b) Explain with suitable diagram about charging station and its requirements.
c) Explain in general the charger technology used in EV battery charger.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) EVSE stands for _____.
 a) Electrical Vehicle Supply Equipment
 b) Could be AC or DC
 c) Used for charging
 d) All
- 2) Latest EV launched by TATA motors _____.
 a) Tigor EV
 b) Kona
 c) Chetak
 d) Nexon EV
- 3) What affect do petrol and diesel engines have on the environment?
 a) They help deplete natural resources and contribute to increasing CO₂ emissions
 b) They help deplete natural resources and reduce CO₂ emissions
 c) They contribute to increasing CO₂ emissions but help reduce global warming
 d) None all of above
- 4) This battery is not suitable for EVs _____.
 a) Li ion battery
 b) Na Ni Cl battery
 c) NaS battery
 d) Lead Acid Battery
- 5) There are _____ methods of battery charging.
 a) Three
 b) Two
 c) One
 d) Four
- 6) Active Safety includes _____.
 a) Anti-Lock Breaking System (ABS)
 b) Air bags
 c) Headrest
 d) All
- 7) Which of the following is common voltage of Battery?
 a) 2 V
 b) 10 V
 c) 12 V
 d) 25 V

- 8) Which of the following is provided to charge the battery constantly?
- | | |
|------------------|-------------|
| a) Generator | b) ECU |
| c) Ignition coil | d) Fuse box |
- 9) EV and HEV has following components common except _____.
- | | |
|--------------|-------------------------------|
| a) Battery | b) ECU |
| c) Generator | d) Internal Combustion Engine |
- 10) A Plug-in Hybrid EV is different from Conventional Hybrid EV because it has _____.
- | | |
|-----------------------------|---------------------------|
| a) Built in Battery Charger | b) Li Ox battery |
| c) more batteries | d) Bigger motor generator |

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Electric Vehicles (BTN06805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt any two. 08**
a) Explain the Types of EVs.
b) Compare Patrol/ Diesel Vehicle and Electrical Vehicle.
c) Explain Brushless DC Electric Motor.
- Q.3 Attempt any two. 12**
a) Draw and explain Hybrid Electrical Vehicle with suitable diagram.
b) Explain Construction and working of Permanent magnet synchronous Motors with suitable diagram.
c) Give details of leading companies in two and four wheeler for EVs.

Section – II

- Q.4 Attempt any two. 08**
a) Explain with suitable diagram about Lead acid battery.
b) Explain the terms regarding EV - Safety, Testing
c) Give the selection Criteria for EVs.
- Q.5 Attempt any two. 12**
a) Explain with suitable diagram about Lithium-Ion Battery Management Systems.
b) Explain with suitable diagram about charging station and its requirements.
c) Explain in general the charger technology used in EV battery charger.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Multiple Choice Questions.

10

- 1) A servo motor is a typical example of _____.
 - a) Electronics system
 - b) Mechanical system
 - c) Computer system
 - d) Mechatronics system
- 2) What is the function of an input signal conditioning unit?
 - a) To produce control signals
 - b) To amplify the signal and convert it into digital form
 - c) To perform mechanical work
 - d) To produce electrical signals
- 3) PLC Operates on following signals _____.
 - a) Digital
 - b) Impulse
 - c) Analog
 - d) Frequency
- 4) EQU, LES, LEQ instructions are examples of which of the following instructions?
 - a) Comparison Instructions
 - b) Sequencing Instructions
 - c) Data Handling Instructions
 - d) Composite Instructions
- 5) Micro-Electro-Mechanical Systems (MEMS) consists of _____.
 - a) microelectronic elements
 - b) actuators, sensors
 - c) mechanical structures
 - d) all of the above
- 6) Point out the wrong statement.
 - a) MEMS stands for micro-electro-mechanical-systems
 - b) MEMS as a class can be between 1000 and 100000 micrometers in size
 - c) Several MEMS are packaged in smartphones
 - d) All of the mentioned
- 7) Smallest change which a sensor can detect is _____.
 - a) Resolution
 - b) Accuracy
 - c) Precision
 - d) Scale

- 8) Thermocouple is a type of sensor that generate output voltage according to _____.
- | | |
|-----------------------|-------------|
| a) Circuit parameters | b) Humidity |
| c) Temperature | d) Voltage |
- 9) Where is the feedback generated by sensors in a mechatronics system given?
- | | |
|-------------------------|-------------------|
| a) Input sensors | b) Comparators |
| c) Mechanical actuators | d) Output sensors |
- 10) Which type of motion is transmitted by hydraulic actuators?
- | | |
|------------------|----------------------|
| a) linear motion | b) rotary motion |
| c) both a and b | d) none of the above |

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two of the Following. 08

- Draw generalized block diagram of mechatronics systems and write short note on following key elements of system
i) Sensors ii) Actuators
- Draw and describe PLC architecture in detail
- What is MEMS? State advantages, disadvantages and applications of MEMS in brief.

Q.3 Solve Any Two of the Following. 12

- Describe the applications of Mechatronics in modern automobile industries with proper examples.
- Compare between PLC & PC Based control systems.
- Explain operation of PLC based bottle filling plant using ladder logic.

Section – II

Q.4 Solve Any Two of the Following. 08

- Compare between sensors & actuators
- Describe the various factors considered while selecting a sensor for a particular application.
- Classify Actuators and compare between Hydraulic and pneumatic actuators.

Q.5 Solve Any Two of the Following. 12

- Describe operating principle of AC servo motor with proper diagram and characteristics.
- Describe the operation of Gyroscope with Proper diagram. Also State its applications.
- What are piezoelectric actuators? How does it work? Enlist its various applications.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Multiple Choice Questions.

10

- 1) Point out the wrong statement.
 - a) MEMS stands for micro-electro-mechanical-systems
 - b) MEMS as a class can be between 1000 and 100000 micrometers in size
 - c) Several MEMS are packaged in smartphones
 - d) All of the mentioned
- 2) Smallest change which a sensor can detect is _____.
 - a) Resolution
 - b) Accuracy
 - c) Precision
 - d) Scale
- 3) Thermocouple is a type of sensor that generate output voltage according to _____.
 - a) Circuit parameters
 - b) Humidity
 - c) Temperature
 - d) Voltage
- 4) Where is the feedback generated by sensors in a mechatronics system given?
 - a) Input sensors
 - b) Comparators
 - c) Mechanical actuators
 - d) Output sensors
- 5) Which type of motion is transmitted by hydraulic actuators?
 - a) linear motion
 - b) rotary motion
 - c) both a and b
 - d) none of the above
- 6) A servo motor is a typical example of _____.
 - a) Electronics system
 - b) Mechanical system
 - c) Computer system
 - d) Mechatronics system
- 7) What is the function of an input signal conditioning unit?
 - a) To produce control signals
 - b) To amplify the signal and convert it into digital form
 - c) To perform mechanical work
 - d) To produce electrical signals

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two of the Following. 08

- a) Draw generalized block diagram of mechatronics systems and write short note on following key elements of system
 - i) Sensors ii) Actuators
- b) Draw and describe PLC architecture in detail
- c) What is MEMS? State advantages, disadvantages and applications of MEMS in brief.

Q.3 Solve Any Two of the Following. 12

- a) Describe the applications of Mechatronics in modern automobile industries with proper examples.
- b) Compare between PLC & PC Based control systems.
- c) Explain operation of PLC based bottle filling plant using ladder logic.

Section – II

Q.4 Solve Any Two of the Following. 08

- a) Compare between sensors & actuators
- b) Describe the various factors considered while selecting a sensor for a particular application.
- c) Classify Actuators and compare between Hydraulic and pneumatic actuators.

Q.5 Solve Any Two of the Following. 12

- a) Describe operating principle of AC servo motor with proper diagram and characteristics.
- b) Describe the operation of Gyroscope with Proper diagram. Also State its applications.
- c) What are piezoelectric actuators? How does it work? Enlist its various applications.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Multiple Choice Questions.

10

- 1) Where is the feedback generated by sensors in a mechatronics system given?

a) Input sensors	b) Comparators
c) Mechanical actuators	d) Output sensors
- 2) Which type of motion is transmitted by hydraulic actuators?

a) linear motion	b) rotary motion
c) both a and b	d) none of the above
- 3) A servo motor is a typical example of _____.

a) Electronics system	b) Mechanical system
c) Computer system	d) Mechatronics system
- 4) What is the function of an input signal conditioning unit?

a) To produce control signals
b) To amplify the signal and convert it into digital form
c) To perform mechanical work
d) To produce electrical signals
- 5) PLC Operates on following signals _____.

a) Digital	b) Impulse
c) Analog	d) Frequency
- 6) EQU, LES, LEQ instructions are examples of which of the following instructions?

a) Comparison Instructions	b) Sequencing Instructions
c) Data Handling Instructions	d) Composite Instructions
- 7) Micro-Electro-Mechanical Systems (MEMS) consists of _____.

a) microelectronic elements	b) actuators, sensors
c) mechanical structures	d) all of the above

- 8)** Point out the wrong statement.
- a) MEMS stands for micro-electro-mechanical-systems
 - b) MEMS as a class can be between 1000 and 100000 micrometers in size
 - c) Several MEMS are packaged in smartphones
 - d) All of the mentioned
- 9)** Smallest change which a sensor can detect is _____.
- a) Resolution
 - b) Accuracy
 - c) Precision
 - d) Scale
- 10)** Thermocouple is a type of sensor that generate output voltage according to _____.
- a) Circuit parameters
 - b) Humidity
 - c) Temperature
 - d) Voltage

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two of the Following. 08

- Draw generalized block diagram of mechatronics systems and write short note on following key elements of system
i) Sensors ii) Actuators
- Draw and describe PLC architecture in detail
- What is MEMS? State advantages, disadvantages and applications of MEMS in brief.

Q.3 Solve Any Two of the Following. 12

- Describe the applications of Mechatronics in modern automobile industries with proper examples.
- Compare between PLC & PC Based control systems.
- Explain operation of PLC based bottle filling plant using ladder logic.

Section – II

Q.4 Solve Any Two of the Following. 08

- Compare between sensors & actuators
- Describe the various factors considered while selecting a sensor for a particular application.
- Classify Actuators and compare between Hydraulic and pneumatic actuators.

Q.5 Solve Any Two of the Following. 12

- Describe operating principle of AC servo motor with proper diagram and characteristics.
- Describe the operation of Gyroscope with Proper diagram. Also State its applications.
- What are piezoelectric actuators? How does it work? Enlist its various applications.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Consider data whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Multiple Choice Questions.

10

- 1) PLC Operates on following signals _____.
 - a) Digital
 - b) Impulse
 - c) Analog
 - d) Frequency
- 2) EQU, LES, LEQ instructions are examples of which of the following instructions?
 - a) Comparison Instructions
 - b) Sequencing Instructions
 - c) Data Handling Instructions
 - d) Composite Instructions
- 3) Micro-Electro-Mechanical Systems (MEMS) consists of _____.
 - a) microelectronic elements
 - b) actuators, sensors
 - c) mechanical structures
 - d) all of the above
- 4) Point out the wrong statement.
 - a) MEMS stands for micro-electro-mechanical-systems
 - b) MEMS as a class can be between 1000 and 100000 micrometers in size
 - c) Several MEMS are packaged in smartphones
 - d) All of the mentioned
- 5) Smallest change which a sensor can detect is _____.
 - a) Resolution
 - b) Accuracy
 - c) Precision
 - d) Scale
- 6) Thermocouple is a type of sensor that generate output voltage according to _____.
 - a) Circuit parameters
 - b) Humidity
 - c) Temperature
 - d) Voltage
- 7) Where is the feedback generated by sensors in a mechatronics system given?
 - a) Input sensors
 - b) Comparators
 - c) Mechanical actuators
 - d) Output sensors

- 8) Which type of motion is transmitted by hydraulic actuators?
- a) linear motion
 - b) rotary motion
 - c) both a and b
 - d) none of the above
- 9) A servo motor is a typical example of _____.
- a) Electronics system
 - b) Mechanical system
 - c) Computer system
 - d) Mechatronics system
- 10) What is the function of an input signal conditioning unit?
- a) To produce control signals
 - b) To amplify the signal and convert it into digital form
 - c) To perform mechanical work
 - d) To produce electrical signals

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Mechatronics (BTN06806)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Two of the Following. 08

- Draw generalized block diagram of mechatronics systems and write short note on following key elements of system
i) Sensors ii) Actuators
- Draw and describe PLC architecture in detail
- What is MEMS? State advantages, disadvantages and applications of MEMS in brief.

Q.3 Solve Any Two of the Following. 12

- Describe the applications of Mechatronics in modern automobile industries with proper examples.
- Compare between PLC & PC Based control systems.
- Explain operation of PLC based bottle filling plant using ladder logic.

Section – II

Q.4 Solve Any Two of the Following. 08

- Compare between sensors & actuators
- Describe the various factors considered while selecting a sensor for a particular application.
- Classify Actuators and compare between Hydraulic and pneumatic actuators.

Q.5 Solve Any Two of the Following. 12

- Describe operating principle of AC servo motor with proper diagram and characteristics.
- Describe the operation of Gyroscope with Proper diagram. Also State its applications.
- What are piezoelectric actuators? How does it work? Enlist its various applications.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (197044801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three questions. 12

- a) State the importance of scattering matrix and explain the properties of scattering matrix.
- b) State the significance of cut off frequency in rectangular waveguide. Derive the expression for cut off frequency.
- c) Find the ABCD parameters of a two port network consisting of a series impedance Z between ports 1 and 2.
- d) Explain in brief about parallel strip line and coplanar strip line.

Q.3 Attempt any two questions. 16

- a) Draw the construction of E plane Tee. Why it is called as E plane Tee? Explain working of E plane Tee with scattering matrix.
- b) Define TE mode in rectangular waveguide. State the conditions for TE mode. Derive the wave equation for TE mode.
- c) What is Faraday rotation principle? State microwave devices which make use of faraday rotation. Explain any one in detail.

Section – II

Q.4 Attempt any three questions. 12

- a) Draw and explain in brief working of Two cavity klystron amplifier with Applegate diagram.
- b) What is avalanche transit time effect? How it is achieved in IMPATT diode.
- c) State the methods used for attenuation measurement. Explain any one in detail.
- d) State the methods used for impedance measurement. Draw and explain the set up for impedance measurement using Reflectometer.

Q.5 Attempt any two questions.

- a) Why slow wave structures are required in TWT. Draw different slow wave structures used for travelling wave tube. Compare Two cavity klystron and TWT.
- b) Define negative resistance principle used for semiconductor microwave devices. State methods used to achieve negative resistance. Explain how negative resistance can be achieved using TED.
- c) A normal cylindrical magnetron has following operating parameters.
Inner Radius $a=0.15\text{m}$, Outer radius $b=0.45\text{m}$, Magnetic flux density $B_0=1.2\text{mwb/m}^2$
 - 1) Determine the Hull cut off voltage.
 - 2) Determine the cut off magnetic flux density if the beam voltage V_0 as 6000V .
 - 3) Determine the cyclotron frequency in GHz.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (197044801)**

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In magnetron electric and magnetic field are _____ to each other.
 - a) Perpendicular
 - b) Parallel
 - c) Coupled
 - d) Synchronous
- 2) The optimum transit time in case of reflex klystron is _____.
 - a) $T = n + 3/2$
 - b) $T = n + 3/4$
 - c) $T = n + 1/4$
 - d) $T = 2n + 1/4$
- 3) The semiconductor diode which can be used in switching circuit at microwave range is _____.
 - a) PIN diode
 - b) Varactor diode
 - c) Tunnel diode
 - d) Gunn diode
- 4) For lossless network, impedance and admittance matrices are _____.
 - a) real
 - b) pure imaginary
 - c) complex
 - d) rational
- 5) The voltage equation for a 2 port network that can be represented as a matrix is _____.
 - a) $V_1 = AV_2 + BI_2$
 - b) $V_1 = CV_2 + DI_2$
 - c) $V_1 = BV_2 + AI_2$
 - d) $V_1 = DV_2 + CI_2$
- 6) S parameters are expressed as a ratio of:
 - a) Voltage and current
 - b) Impedance at different ports
 - c) Incident and the reflected voltage waves
 - d) None of the mentioned
- 7) Accurate measurement of attenuation can be done by _____ method.
 - a) Power Ratio
 - b) RF substitution
 - c) using magic Tee
 - d) using slotted line
- 8) E plane tee is called _____.
 - a) current divider
 - b) power device
 - c) 3 dB splitter
 - d) reciprocal device

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (197044801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three questions. 12

- a) State the importance of scattering matrix and explain the properties of scattering matrix.
- b) State the significance of cut off frequency in rectangular waveguide. Derive the expression for cut off frequency.
- c) Find the ABCD parameters of a two port network consisting of a series impedance Z between ports 1 and 2.
- d) Explain in brief about parallel strip line and coplanar strip line.

Q.3 Attempt any two questions. 16

- a) Draw the construction of E plane Tee. Why it is called as E plane Tee? Explain working of E plane Tee with scattering matrix.
- b) Define TE mode in rectangular waveguide. State the conditions for TE mode. Derive the wave equation for TE mode.
- c) What is Faraday rotation principle? State microwave devices which make use of faraday rotation. Explain any one in detail.

Section – II

Q.4 Attempt any three questions. 12

- a) Draw and explain in brief working of Two cavity klystron amplifier with Applegate diagram.
- b) What is avalanche transit time effect? How it is achieved in IMPATT diode.
- c) State the methods used for attenuation measurement. Explain any one in detail.
- d) State the methods used for impedance measurement. Draw and explain the set up for impedance measurement using Reflectometer.

Q.5 Attempt any two questions.

- a) Why slow wave structures are required in TWT. Draw different slow wave structures used for travelling wave tube. Compare Two cavity klystron and TWT.
- b) Define negative resistance principle used for semiconductor microwave devices. State methods used to achieve negative resistance. Explain how negative resistance can be achieved using TED.
- c) A normal cylindrical magnetron has following operating parameters.
Inner Radius $a=0.15\text{m}$, Outer radius $b=0.45\text{m}$, Magnetic flux density $B_0=1.2\text{mwb/m}^2$
 - 1) Determine the Hull cut off voltage.
 - 2) Determine the cut off magnetic flux density if the beam voltage V_0 as 6000V.
 - 3) Determine the cyclotron frequency in GHz.

- 9) In TWT electron beam is _____ and RF field is _____.
- a) Travelling, stationary b) stationary, stationary
c) Travelling, Travelling d) stationary, Travelling
- 10) _____ of the following is not a negative resistance operated device.
- a) Gunn diode b) Tunnel diode
c) IMPATT diode d) Varactor diode
- 11) An air filled rectangular waveguide of inside dimensions $7\text{cm} \times 3.5\text{cm}$ operates in dominant mode. The cut off frequency is _____.
- a) 2.14 GHz b) 21.4 GHz
c) 2.14 MHz d) 21.4 MHz
- 12) In magnetron electric and magnetic field are _____ to each other.
- a) Perpendicular b) Parallel
c) Coupled d) Synchronous
- 13) The optimum transit time in case of reflex klystron is _____.
- a) $T = n + 3/2$ b) $T = n + 3/4$
c) $T = n + 1/4$ d) $T = 2n + 1/4$
- 14) The semiconductor diode which can be used in switching circuit at microwave range is _____.
- a) PIN diode b) Varactor diode
c) Tunnel diode d) Gunn diode

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (197044801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three questions. 12

- a) State the importance of scattering matrix and explain the properties of scattering matrix.
- b) State the significance of cut off frequency in rectangular waveguide. Derive the expression for cut off frequency.
- c) Find the ABCD parameters of a two port network consisting of a series impedance Z between ports 1 and 2.
- d) Explain in brief about parallel strip line and coplanar strip line.

Q.3 Attempt any two questions. 16

- a) Draw the construction of E plane Tee. Why it is called as E plane Tee? Explain working of E plane Tee with scattering matrix.
- b) Define TE mode in rectangular waveguide. State the conditions for TE mode. Derive the wave equation for TE mode.
- c) What is Faraday rotation principle? State microwave devices which make use of faraday rotation. Explain any one in detail.

Section – II

Q.4 Attempt any three questions. 12

- a) Draw and explain in brief working of Two cavity klystron amplifier with Applegate diagram.
- b) What is avalanche transit time effect? How it is achieved in IMPATT diode.
- c) State the methods used for attenuation measurement. Explain any one in detail.
- d) State the methods used for impedance measurement. Draw and explain the set up for impedance measurement using Reflectometer.

Q.5 Attempt any two questions.

- a) Why slow wave structures are required in TWT. Draw different slow wave structures used for travelling wave tube. Compare Two cavity klystron and TWT.
- b) Define negative resistance principle used for semiconductor microwave devices. State methods used to achieve negative resistance. Explain how negative resistance can be achieved using TED.
- c) A normal cylindrical magnetron has following operating parameters.
Inner Radius $a=0.15\text{m}$, Outer radius $b=0.45\text{m}$, Magnetic flux density $B_0=1.2\text{mwb/m}^2$
 - 1) Determine the Hull cut off voltage.
 - 2) Determine the cut off magnetic flux density if the beam voltage V_0 as 6000V.
 - 3) Determine the cyclotron frequency in GHz.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (197044801)**

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ of the following is not a negative resistance operated device.
 - a) Gunn diode
 - b) Tunnel diode
 - c) IMPATT diode
 - d) Varactor diode
- 2) An air filled rectangular waveguide of inside dimensions 7cm × 3.5cm operates in dominant mode. The cut off frequency is _____.
 - a) 2.14 GHz
 - b) 21.4 GHz
 - c) 2.14 MHz
 - d) 21.4 MHz
- 3) In magnetron electric and magnetic field are _____ to each other.
 - a) Perpendicular
 - b) Parallel
 - c) Coupled
 - d) Synchronous
- 4) The optimum transit time in case of reflex klystron is _____.
 - a) $T = n + 3/2$
 - b) $T = n + 3/4$
 - c) $T = n + 1/4$
 - d) $T = 2n + 1/4$
- 5) The semiconductor diode which can be used in switching circuit at microwave range is _____.
 - a) PIN diode
 - b) Varactor diode
 - c) Tunnel diode
 - d) Gunn diode
- 6) For lossless network, impedance and admittance matrices are _____.
 - a) real
 - b) pure imaginary
 - c) complex
 - d) rational
- 7) The voltage equation for a 2 port network that can be represented as a matrix is _____.
 - a) $V_1 = AV_2 + BI_2$
 - b) $V_1 = CV_2 + DI_2$
 - c) $V_1 = BV_2 + AI_2$
 - d) $V_1 = DV_2 + CI_2$
- 8) S parameters are expressed as a ratio of:
 - a) Voltage and current
 - b) Impedance at different ports
 - c) Incident and the reflected voltage waves
 - d) None of the mentioned

- 9) Accurate measurement of attenuation can be done by _____ method.
- a) Power Ratio
 - b) RF substitution
 - c) using magic Tee
 - d) using slotted line
- 10) E plane tee is called _____.
- a) current divider
 - b) power device
 - c) 3 dB splitter
 - d) reciprocal device
- 11) The power between 10mw to 1w can be measured by _____ technique.
- a) Bolometer
 - b) Thermister
 - c) Calorimetric wattmeter
 - d) Caloremtric Technique
- 12) In Rectangular waveguide lower order modes are not present in _____.
- a) TE
 - b) TM
 - c) TEM
 - d) TE and TM
- 13) The spacing between the centers of two hole directional coupler must be _____.
- a) $(n + 1)\lambda/4$
 - b) $(n + 2)\lambda/4$
 - c) $(2n + 1)\lambda/4$
 - d) $n\lambda/4$
- 14) In TWT electron beam is _____ and RF field is _____.
- a) Travelling, stationary
 - b) stationary, stationary
 - c) Travelling, Travelling
 - d) stationary, Travelling

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONIC AND TELECOMMUNICATION ENGINEERING
Microwave Engineering (197044801)**

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three questions. 12

- a) State the importance of scattering matrix and explain the properties of scattering matrix.
- b) State the significance of cut off frequency in rectangular waveguide. Derive the expression for cut off frequency.
- c) Find the ABCD parameters of a two port network consisting of a series impedance Z between ports 1 and 2.
- d) Explain in brief about parallel strip line and coplanar strip line.

Q.3 Attempt any two questions. 16

- a) Draw the construction of E plane Tee. Why it is called as E plane Tee? Explain working of E plane Tee with scattering matrix.
- b) Define TE mode in rectangular waveguide. State the conditions for TE mode. Derive the wave equation for TE mode.
- c) What is Faraday rotation principle? State microwave devices which make use of faraday rotation. Explain any one in detail.

Section – II

Q.4 Attempt any three questions. 12

- a) Draw and explain in brief working of Two cavity klystron amplifier with Applegate diagram.
- b) What is avalanche transit time effect? How it is achieved in IMPATT diode.
- c) State the methods used for attenuation measurement. Explain any one in detail.
- d) State the methods used for impedance measurement. Draw and explain the set up for impedance measurement using Reflectometer.

Q.5 Attempt any two questions.

- a) Why slow wave structures are required in TWT. Draw different slow wave structures used for travelling wave tube. Compare Two cavity klystron and TWT.
- b) Define negative resistance principle used for semiconductor microwave devices. State methods used to achieve negative resistance. Explain how negative resistance can be achieved using TED.
- c) A normal cylindrical magnetron has following operating parameters.
Inner Radius $a=0.15\text{m}$, Outer radius $b=0.45\text{m}$, Magnetic flux density $B_0=1.2\text{mwb/m}^2$
 - 1) Determine the Hull cut off voltage.
 - 2) Determine the cut off magnetic flux density if the beam voltage V_0 as 6000V .
 - 3) Determine the cyclotron frequency in GHz.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The drain current is varied by _____.
 - a) Gate to source voltage
 - b) Gate current
 - c) Source voltage
 - d) None of the mentioned
- 2) The n-MOSFET is working as accumulation mode when _____.
 - a) Gate is applied with positive voltage
 - b) Gate is grounded
 - c) Gate is applied with negative voltage
 - d) Gate is connected to source
- 3) CMOS inverter circuit has pair of transistors which are _____.
 - a) Two PMOS
 - b) Two BJT
 - c) Two NMOS
 - d) Two complementary CMOS
- 4) Threshold voltage of PMOS and NMOS in CMOS inverter is _____.
 - a) Equal in magnitude
 - b) Opposite in magnitude
 - c) Infinite in magnitude
 - d) Zero
- 5) CMOS inverter has _____ regions of operation.
 - a) Three
 - b) Four
 - c) Two
 - d) Five
- 6) If n transistor conducts and has large voltages between source & drain, then it is said to be in _____ region.
 - a) Linear
 - b) Saturation
 - c) None saturation
 - d) Cut off
- 7) Mobility depends upon _____.
 - a) Transverse electric field
 - b) V_g
 - c) V_{dd}
 - d) Channel length

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)**

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Four. 16**
a) Explain the physical structure of MOS transistor with neat diagram.
b) Write MOS device design equations.
c) Explain MOS layers with neat diagram.
d) Explain the Technology Scaling in detail.
e) Write a short note in Retired logic.
- Q.3 Attempt any two. 12**
a) Draw and explain with neat graph accumulation, depletion and inversion modes.
b) Draw and explain stick diagram.
c) Explain with neat diagram pass transistor logic.

Section – II

- Q.4 Attempt any four. 16**
a) Explain in detail multiplexer based latches.
b) Explain static SR flip-flop.
c) Explain Timing classification.
d) Explain synchronous interconnect.
e) Explain designing fast multiplier.
- Q.5 Attempt any two. 12**
a) Explain static latches and register, write Bistability principle.
b) Write detail of synchronous design - clock skew, jitter.
c) Explain designing fast adder with neat diagram.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) CMOS inverter has _____ output impedance.
 - a) low
 - b) high
 - c) very high
 - d) None of mentioned
- 2) Increasing fan out _____ the propagation delay.
 - a) increases
 - b) decreases
 - c) does not affect
 - d) exponentially
- 3) If $\beta_n = \beta_p$, then V_{in} is equal to _____.
 - a) V_{dd}
 - b) V_{ss}
 - c) $2 V_{dd}$
 - d) $0.5 V_{dd}$
- 4) _____ are example of combinational circuit.
 - a) Shift register
 - b) Multiplexers
 - c) Counters
 - d) Flip-flops
- 5) As compared to TTL, CMOS logic has _____.
 - a) high speed of operation
 - b) higher power dissipation
 - c) smaller physical size
 - d) None of the above
- 6) The cross coupling of two inverter creates a _____ circuit called Hip Hop.
 - a) bistable
 - b) metastable
 - c) Both of above
 - d) None of above
- 7) When there is no clock signal is applied to CMOS logic circuit, are referred to as _____.
 - a) Complex CMOS logic circuit
 - b) Static CMOS logic circuits
 - c) NMOS transmission gate
 - d) Random PMOS logic circuit
- 8) The drain current is varied by _____.
 - a) Gate to source voltage
 - b) Gate current
 - c) Source voltage
 - d) None of the mentioned

- 9) The n-MOSFET is working as accumulation mode when _____.
a) Gate is applied with positive voltage
b) Gate is grounded
c) Gate is applied with negative voltage
d) Gate is connected to source
- 10) CMOS inverter circuit has pair of transistors which are _____.
a) Two PMOS
b) Two BJT
c) Two NMOS
d) Two complementary CMOS
- 11) Threshold voltage of PMOS and NMOS in CMOS inverter is _____.
a) Equal in magnitude
b) Opposite in magnitude
c) Infinite in magnitude
d) Zero
- 12) CMOS inverter has _____ regions of operation.
a) Three
b) Four
c) Two
d) Five
- 13) If n transistor conducts and has large voltages between source & drain, then it is said to be in _____ region.
a) Linear
b) Saturation
c) None saturation
d) Cut off
- 14) Mobility depends upon _____.
a) Transverse electric field
b) V_g
c) V_{dd}
d) Channel length

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)**

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Four. 16**
- a) Explain the physical structure of MOS transistor with neat diagram.
 - b) Write MOS device design equations.
 - c) Explain MOS layers with neat diagram.
 - d) Explain the Technology Scaling in detail.
 - e) Write a short note in Retired logic.
- Q.3 Attempt any two. 12**
- a) Draw and explain with neat graph accumulation, depletion and inversion modes.
 - b) Draw and explain stick diagram.
 - c) Explain with neat diagram pass transistor logic.

Section – II

- Q.4 Attempt any four. 16**
- a) Explain in detail multiplexer based latches.
 - b) Explain static SR flip-flop.
 - c) Explain Timing classification.
 - d) Explain synchronous interconnect.
 - e) Explain designing fast multiplier.
- Q.5 Attempt any two. 12**
- a) Explain static latches and register, write Bistability principle.
 - b) Write detail of synchronous design - clock skew, jitter.
 - c) Explain designing fast adder with neat diagram.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)

Day & Date: Friday 10-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ are example of combinational circuit.
 - a) Shift register
 - b) Multiplexers
 - c) Counters
 - d) Flip-flops
- 2) As compared to TTL, CMOS logic has _____.
 - a) high speed of operation
 - b) higher power dissipation
 - c) smaller physical size
 - d) None of the above
- 3) The cross coupling of two inverter creates a _____ circuit called Hip Hop.
 - a) bistable
 - b) metastable
 - c) Both of above
 - d) None of above
- 4) When there is no clock signal is applied to CMOS logic circuit, are referred to as _____.
 - a) Complex CMOS logic circuit
 - b) Static CMOS logic circuits
 - c) NMOS transmission gate
 - d) Random PMOS logic circuit
- 5) The drain current is varied by _____.
 - a) Gate to source voltage
 - b) Gate current
 - c) Source voltage
 - d) None of the mentioned
- 6) The n-MOSFET is working as accumulation mode when _____.
 - a) Gate is applied with positive voltage
 - b) Gate is grounded
 - c) Gate is applied with negative voltage
 - d) Gate is connected to source
- 7) CMOS inverter circuit has pair of transistors which are _____.
 - a) Two PMOS
 - b) Two BJT
 - c) Two NMOS
 - d) Two complementary CMOS
- 8) Threshold voltage of PMOS and NMOS is CMOS inverter is _____.
 - a) Equal in magnitude
 - b) Opposite in magnitude
 - c) Infinite in magnitude
 - d) Zero

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)**

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Four. 16**
- a) Explain the physical structure of MOS transistor with neat diagram.
 - b) Write MOS device design equations.
 - c) Explain MOS layers with neat diagram.
 - d) Explain the Technology Scaling in detail.
 - e) Write a short note in Retired logic.
- Q.3 Attempt any two. 12**
- a) Draw and explain with neat graph accumulation, depletion and inversion modes.
 - b) Draw and explain stick diagram.
 - c) Explain with neat diagram pass transistor logic.

Section – II

- Q.4 Attempt any four. 16**
- a) Explain in detail multiplexer based latches.
 - b) Explain static SR flip-flop.
 - c) Explain Timing classification.
 - d) Explain synchronous interconnect.
 - e) Explain designing fast multiplier.
- Q.5 Attempt any two. 12**
- a) Explain static latches and register, write Bistability principle.
 - b) Write detail of synchronous design - clock skew, jitter.
 - c) Explain designing fast adder with neat diagram.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)**

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) If n transistor conducts and has large voltages between source & drain, then it is said to be in _____ region.

a) Liner	b) Saturation
c) None saturation	d) Cut off
- 2) Mobility depends upon _____.

a) Transverse electric field	b) V_g
c) V_{dd}	d) Channel length
- 3) CMOS inverter has _____ output impedance.

a) low	b) high
c) very high	d) None of mentioned
- 4) Increasing fan out _____ the propagation delay.

a) increases	b) decreases
c) does not affect	d) exponentially
- 5) If $\beta_n = \beta_p$, then V_{in} is equal to _____.

a) V_{dd}	b) V_{ss}
c) $2 V_{dd}$	d) $0.5 V_{dd}$
- 6) _____ are example of combinational circuit.

a) Shift register	b) Multiplexers
c) Counters	d) Flip-flops
- 7) As compared to TTL, CMOS logic has _____.

a) high speed of operation	b) higher power dissipation
c) smaller physical size	d) None of the above
- 8) The cross coupling of two inverter creates a _____ circuit called Hip Hop.

a) bistable	b) metastable
c) Both of above	d) None of above

- 9) When there is no clock signal is applied to CMOS logic circuit, are referred to as _____.
- a) Complex CMOS logic circuit
 - b) Static CMOS logic circuits
 - c) NMOS transmission gate
 - d) Random PMOS logic circuit
- 10) The drain current is varied by _____.
- a) Gate to source voltage
 - b) Gate current
 - c) Source voltage
 - d) None of the mentioned
- 11) The n-MOSFET is working as accumulation mode when _____.
- a) Gate is applied with positive voltage
 - b) Gate is grounded
 - c) Gate is applied with negative voltage
 - d) Gate is connected to source
- 12) CMOS inverter circuit has pair of transistors which are _____
- a) Two PMOS
 - b) Two BJT
 - c) Two NMOS
 - d) Two complementary CMOS
- 13) Threshold voltage of PMOS and NMOS is CMOS inverter is _____.
- a) Equal in magnitude
 - b) Opposite in magnitude
 - c) Infinite in magnitude
 - d) Zero
- 14) CMOS inverter has _____ regions of operation.
- a) Three
 - b) Four
 - c) Two
 - d) Five

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
CMOSVLSI Design (197044802)**

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Four. 16**
- a) Explain the physical structure of MOS transistor with neat diagram.
 - b) Write MOS device design equations.
 - c) Explain MOS layers with neat diagram.
 - d) Explain the Technology Scaling in detail.
 - e) Write a short note in Retired logic.
- Q.3 Attempt any two. 12**
- a) Draw and explain with neat graph accumulation, depletion and inversion modes.
 - b) Draw and explain stick diagram.
 - c) Explain with neat diagram pass transistor logic.

Section – II

- Q.4 Attempt any four. 16**
- a) Explain in detail multiplexer based latches.
 - b) Explain static SR flip-flop.
 - c) Explain Timing classification.
 - d) Explain synchronous interconnect.
 - e) Explain designing fast multiplier.
- Q.5 Attempt any two. 12**
- a) Explain static latches and register, write Bistability principle.
 - b) Write detail of synchronous design - clock skew, jitter.
 - c) Explain designing fast adder with neat diagram.

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What are the benefits of IIoT?
 - a) Improves productivity
 - b) Enables remote diagnosis
 - c) Reduces operation time
 - d) All of the above
- 2) How many key elements are there in the industrial internet?
 - a) 5
 - b) 3
 - c) 2
 - d) None of there
- 3) Which of the following best describes a smart sensor?
 - a) Sensor with smart memory, processor and communication interface
 - b) Sensor with only memory
 - c) Sensor with LED
 - d) Sensor with buzzer
- 4) What is the frequency range in which 6LoWPAN works worldwide?
 - a) 2400 - 2483.5 MHz
 - b) 2300 - 2345 MHz
 - c) 2400 - 2843.5 MHz
 - d) 2400 - 2583.5 MHz
- 5) Mention some characteristics of IoT devices _____.
 - a) Low processing power
 - b) Smart in size
 - c) Energy constrained in nature
 - d) All of the above
- 6) What are three basic goals of IIoT security?
 - a) Adversity, integrity, central security
 - b) Adversity, integrity, confidentiality
 - c) Availability, instantaneous, confidentiality
 - d) Availability, integrity, confidentiality
- 7) Which of the following is/are considered to be the attack vectors observed in the network layer?
 - a) Misrouting
 - b) DDoS
 - c) Both a and b
 - d) None of these

- 8) What are the different communication protection techniques used in a secured IIoT?
- a) Security gateways
 - b) Network firewalls
 - c) Network access control
 - d) all of the above
- 9) Point out the wrong statement with reference to AWS _____.
- a) Amazon Machine Instances are sized at various levels and rented on a computing/hour basis
 - b) The metrics obtained by CloudWatch may be used to enable a feature called Auto Scaling
 - c) A number of tools are used to support EC2 services
 - d) None of these
- 10) Which of the following allows you to create instances of the MySQL database to support your web sites?
- a) Amazon Elastic Compute Cloud
 - b) Amazon Simple Queue Service
 - c) Amazon Relational Database Service
 - d) Amazon Simple Storage System
- 11) What are the different types of instances?
- a) General purpose
 - b) Computer Optimized
 - c) Storage Optimized
 - d) All of the above
- 12) How would you separate two or more cloud instances but manage them with one Keystone instance?
- a) Use Domains feature
 - b) Use Regions feature
 - c) Use availability zones
 - d) Each cloud instance should use own Keystone instance feature
- 13) Which of the following media files can BigQuery API upload in GCP?
- a) JPEG
 - b) PDF
 - c) All of these
 - d) MP4
- 14) BigQuery uses _____ tables to create smaller data sets by date.
- a) time-partitioned
 - b) template
 - c) external
 - d) date-bucket

Seat No.	
-----------------	--

Set P

**Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt Any Three** **12**
- a) Briefly explain what are the key IIoT Technology Catalysts and Precursors?
 - b) What are the important functional characteristics of connectivity in IIoT?
 - c) With a neat diagram, explain detailed IIC Industrial Internet Reference Architecture.
 - d) Explain in detail what is 6LoWPAN communication technology in IIoT.
- Q.3 Attempt any Two** **16**
- a) Discuss in detail the Industrial Internet Consortium Three-Tier Topology in IIoT.
 - b) Explain the types and methods of analytics in IIoT.
 - c) Discuss in detail the potential security issues at the system level of IIoT.

Section – II

- Q.4 Attempt Any Three** **12**
- a) Draw and explain the AWS architecture for IoT.
 - b) Explain with suitable example the two main components of Google Cloud IoT core.
 - c) Write note on the following components:
 - 1) Bare Metal
 - 2) Containers
 - d) Explain the following core projects of OpenStack ecosystem:
 - 1) Identity
 - 2) Compute
 - 3) Storage
- Q.5 Attempt Any Two** **16**
- a) Explain why Bigtable is ideal for applications that need very high throughput and scalability for key/value data.
 - b) Explain the four types of VPC architectures available in AWS with suitable diagram.
 - c) Briefly explain the modern architecture of open stack with appropriate diagram.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What are the different communication protection techniques used in a secured IIoT?
 - a) Security gateways
 - b) Network firewalls
 - c) Network access control
 - d) all of the above
- 2) Point out the wrong statement with reference to AWS _____.
 - a) Amazon Machine Instances are sized at various levels and rented on a computing/hour basis
 - b) The metrics obtained by CloudWatch may be used to enable a feature called Auto Scaling
 - c) A number of tools are used to support EC2 services
 - d) None of these
- 3) Which of the following allows you to create instances of the MySQL database to support your web sites?
 - a) Amazon Elastic Compute Cloud
 - b) Amazon Simple Queue Service
 - c) Amazon Relational Database Service
 - d) Amazon Simple Storage System
- 4) What are the different types of instances?
 - a) General purpose
 - b) Computer Optimized
 - c) Storage Optimized
 - d) All of the above
- 5) How would you separate two or more cloud instances but manage them with one Keystone instance?
 - a) Use Domains feature
 - b) Use Regions feature
 - c) Use availability zones
 - d) Each cloud instance should use own Keystone instance feature
- 6) Which of the following media files can BigQuery API upload in GCP?
 - a) JPEG
 - b) PDF
 - c) All of these
 - d) MP4

- 7) BigQuery uses _____ tables to create smaller data sets by date.
- a) time-partitioned
 - b) template
 - c) external
 - d) date-bucket
- 8) What are the benefits of IIoT?
- a) Improves productivity
 - b) Enables remote diagnosis
 - c) Reduces operation time
 - d) All of the above
- 9) How many key elements are there in the industrial internet?
- a) 5
 - b) 3
 - c) 2
 - d) None of there
- 10) Which of the following best describes a smart sensor?
- a) Sensor with smart memory, processor and communication interface
 - b) Sensor with only memory
 - c) Sensor with LED
 - d) Sensor with buzzer
- 11) What is the frequency range in which 6LoWPAN works worldwide?
- a) 2400 - 2483.5 MHz
 - b) 2300 - 2345 MHz
 - c) 2400 - 2843.5 MHz
 - d) 2400 - 2583.5 MHz
- 12) Mention some characteristics of IoT devices _____.
- a) Low processing power
 - b) Smart in size
 - c) Energy constrained in nature
 - d) All of the above
- 13) What are three basic goals of IIoT security?
- a) Adversity, integrity, central security
 - b) Adversity, integrity, confidentiality
 - c) Availability, instantaneous, confidentiality
 - d) Availability, integrity, confidentiality
- 14) Which of the following is/are considered to be the attack vectors observed in the network layer?
- a) Misrouting
 - b) DDoS
 - c) Both a and b
 - d) None of these

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt Any Three** **12**
- a) Briefly explain what are the key IIoT Technology Catalysts and Precursors?
 - b) What are the important functional characteristics of connectivity in IIoT?
 - c) With a neat diagram, explain detailed IIC Industrial Internet Reference Architecture.
 - d) Explain in detail what is 6LoWPAN communication technology in IIoT.
- Q.3 Attempt any Two** **16**
- a) Discuss in detail the Industrial Internet Consortium Three-Tier Topology in IIoT.
 - b) Explain the types and methods of analytics in IIoT.
 - c) Discuss in detail the potential security issues at the system level of IIoT.

Section – II

- Q.4 Attempt Any Three** **12**
- a) Draw and explain the AWS architecture for IoT.
 - b) Explain with suitable example the two main components of Google Cloud IoT core.
 - c) Write note on the following components:
 - 1) Bare Metal
 - 2) Containers
 - d) Explain the following core projects of OpenStack ecosystem:
 - 1) Identity
 - 2) Compute
 - 3) Storage
- Q.5 Attempt Any Two** **16**
- a) Explain why Bigtable is ideal for applications that need very high throughput and scalability for key/value data.
 - b) Explain the four types of VPC architectures available in AWS with suitable diagram.
 - c) Briefly explain the modern architecture of open stack with appropriate diagram.

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What are the different types of instances?
 - a) General purpose
 - b) Computer Optimized
 - c) Storage Optimized
 - d) All of the above
- 2) How would you separate two or more cloud instances but manage them with one Keystone instance?
 - a) Use Domains feature
 - b) Use Regions feature
 - c) Use availability zones
 - d) Each cloud instance should use own Keystone instance feature
- 3) Which of the following media files can BigQuery API upload in GCP?
 - a) JPEG
 - b) PDF
 - c) All of these
 - d) MP4
- 4) BigQuery uses _____ tables to create smaller data sets by date.
 - a) time-partitioned
 - b) template
 - c) external
 - d) date-bucket
- 5) What are the benefits of IIoT?
 - a) Improves productivity
 - b) Enables remote diagnosis
 - c) Reduces operation time
 - d) All of the above
- 6) How many key elements are there in the industrial internet?
 - a) 5
 - b) 3
 - c) 2
 - d) None of there
- 7) Which of the following best describes a smart sensor?
 - a) Sensor with smart memory, processor and communication interface
 - b) Sensor with only memory
 - c) Sensor with LED
 - d) Sensor with buzzer
- 8) What is the frequency range in which 6LoWPAN works worldwide?
 - a) 2400 - 2483.5 MHz
 - b) 2300 - 2345 MHz
 - c) 2400 - 2843.5 MHz
 - d) 2400 - 2583.5 MHz

- 9) Mention some characteristics of IoT devices _____.
- a) Low processing power
 - b) Smart in size
 - c) Energy constrained in nature
 - d) All of the above
- 10) What are three basic goals of IIoT security?
- a) Adversity, integrity, central security
 - b) Adversity, integrity, confidentiality
 - c) Availability, instantaneous, confidentiality
 - d) Availability, integrity, confidentiality
- 11) Which of the following is/are considered to be the attack vectors observed in the network layer?
- a) Misrouting
 - b) DDoS
 - c) Both a and b
 - d) None of these
- 12) What are the different communication protection techniques used in a secured IIoT?
- a) Security gateways
 - b) Network firewalls
 - c) Network access control
 - d) all of the above
- 13) Point out the wrong statement with reference to AWS _____.
- a) Amazon Machine Instances are sized at various levels and rented on a computing/hour basis
 - b) The metrics obtained by CloudWatch may be used to enable a feature called Auto Scaling
 - c) A number of tools are used to support EC2 services
 - d) None of these
- 14) Which of the following allows you to create instances of the MySQL database to support your web sites?
- a) Amazon Elastic Compute Cloud
 - b) Amazon Simple Queue Service
 - c) Amazon Relational Database Service
 - d) Amazon Simple Storage System

Seat No.	
-----------------	--

Set R

**Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt Any Three** **12**
- a) Briefly explain what are the key IIoT Technology Catalysts and Precursors?
 - b) What are the important functional characteristics of connectivity in IIoT?
 - c) With a neat diagram, explain detailed IIC Industrial Internet Reference Architecture.
 - d) Explain in detail what is 6LoWPAN communication technology in IIoT.
- Q.3 Attempt any Two** **16**
- a) Discuss in detail the Industrial Internet Consortium Three-Tier Topology in IIoT.
 - b) Explain the types and methods of analytics in IIoT.
 - c) Discuss in detail the potential security issues at the system level of IIoT.

Section – II

- Q.4 Attempt Any Three** **12**
- a) Draw and explain the AWS architecture for IoT.
 - b) Explain with suitable example the two main components of Google Cloud IoT core.
 - c) Write note on the following components:
 - 1) Bare Metal
 - 2) Containers
 - d) Explain the following core projects of OpenStack ecosystem:
 - 1) Identity
 - 2) Compute
 - 3) Storage
- Q.5 Attempt Any Two** **16**
- a) Explain why Bigtable is ideal for applications that need very high throughput and scalability for key/value data.
 - b) Explain the four types of VPC architectures available in AWS with suitable diagram.
 - c) Briefly explain the modern architecture of open stack with appropriate diagram.

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What are three basic goals of IIoT security?
 - a) Adversity, integrity, central security
 - b) Adversity, integrity, confidentiality
 - c) Availability, instantaneous, confidentiality
 - d) Availability, integrity, confidentiality
- 2) Which of the following is/are considered to be the attack vectors observed in the network layer?

a) Misrouting	b) DDoS
c) Both a and b	d) None of these
- 3) What are the different communication protection techniques used in a secured IIoT?

a) Security gateways	b) Network firewalls
c) Network access control	d) all of the above
- 4) Point out the wrong statement with reference to AWS _____.
 - a) Amazon Machine Instances are sized at various levels and rented on a computing/hour basis
 - b) The metrics obtained by CloudWatch may be used to enable a feature called Auto Scaling
 - c) A number of tools are used to support EC2 services
 - d) None of these
- 5) Which of the following allows you to create instances of the MySQL database to support your web sites?
 - a) Amazon Elastic Compute Cloud
 - b) Amazon Simple Queue Service
 - c) Amazon Relational Database Service
 - d) Amazon Simple Storage System
- 6) What are the different types of instances?

a) General purpose	b) Computer Optimized
c) Storage Optimized	d) All of the above

- 7) How would you separate two or more cloud instances but manage them with one Keystone instance?
- a) Use Domains feature
 - b) Use Regions feature
 - c) Use availability zones
 - d) Each cloud instance should use own Keystone instance feature
- 8) Which of the following media files can BigQuery API upload in GCP?
- a) JPEG
 - b) PDF
 - c) All of these
 - d) MP4
- 9) BigQuery uses _____ tables to create smaller data sets by date.
- a) time-partitioned
 - b) template
 - c) external
 - d) date-bucket
- 10) What are the benefits of IIoT?
- a) Improves productivity
 - b) Enables remote diagnosis
 - c) Reduces operation time
 - d) All of the above
- 11) How many key elements are there in the industrial internet?
- a) 5
 - b) 3
 - c) 2
 - d) None of there
- 12) Which of the following best describes a smart sensor?
- a) Sensor with smart memory, processor and communication interface
 - b) Sensor with only memory
 - c) Sensor with LED
 - d) Sensor with buzzer
- 13) What is the frequency range in which 6LoWPAN works worldwide?
- a) 2400 - 2483.5 MHz
 - b) 2300 - 2345 MHz
 - c) 2400 - 2843.5 MHz
 - d) 2400 - 2583.5 MHz
- 14) Mention some characteristics of IoT devices _____.
- a) Low processing power
 - b) Smart in size
 - c) Energy constrained in nature
 - d) All of the above

Seat No.	
-----------------	--

Set S

**Fourth Y. (B. Tech) (Sem-II) (Old)(CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Industrial IOT (197044804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if required.

Section – I

- Q.2 Attempt Any Three** **12**
- a) Briefly explain what are the key IIoT Technology Catalysts and Precursors?
 - b) What are the important functional characteristics of connectivity in IIoT?
 - c) With a neat diagram, explain detailed IIC Industrial Internet Reference Architecture.
 - d) Explain in detail what is 6LoWPAN communication technology in IIoT.
- Q.3 Attempt any Two** **16**
- a) Discuss in detail the Industrial Internet Consortium Three-Tier Topology in IIoT.
 - b) Explain the types and methods of analytics in IIoT.
 - c) Discuss in detail the potential security issues at the system level of IIoT.

Section – II

- Q.4 Attempt Any Three** **12**
- a) Draw and explain the AWS architecture for IoT.
 - b) Explain with suitable example the two main components of Google Cloud IoT core.
 - c) Write note on the following components:
 - 1) Bare Metal
 - 2) Containers
 - d) Explain the following core projects of OpenStack ecosystem:
 - 1) Identity
 - 2) Compute
 - 3) Storage
- Q.5 Attempt Any Two** **16**
- a) Explain why Bigtable is ideal for applications that need very high throughput and scalability for key/value data.
 - b) Explain the four types of VPC architectures available in AWS with suitable diagram.
 - c) Briefly explain the modern architecture of open stack with appropriate diagram.

- 7) The Set of actions for a problem in a state space is formulated by a _____
- a) Intermediate states
 - b) Initial state
 - c) Successor function, which takes current action and returns next immediate state
 - d) None of the above
- 8) What is the major component/components for measuring the performance of problem solving?
- a) Completeness
 - b) Optimality
 - c) Time and Space complexity
 - d) All of the mentioned
- 9) Which search strategy is also called as blind search?
- a) Uninformed search
 - b) Informed search
 - c) Simple reflex search
 - d) All of the mentioned
- 10) Translate the following statement into FOL.
“For every a, if a is a philosopher, then a is a scholar”
- a) $\forall a$ philosopher(a) scholar(a)
 - b) $\exists a$ philosopher(a) scholar(a)
 - c) $\forall a$ philosopher(a) scholar(x)
 - d) $\exists a$ philosopher(x) scholar(a)
- 11) First Order Logic is also known as _____
- a) First Order Predicate Calculus
 - b) Quantification Theory
 - c) Lower Order Calculus
 - d) All of the mentioned
- 12) What is the primary goal of Natural Language Processing (NLP)?
- a) Understanding and processing human language
 - b) Simulating human-like conversation
 - c) Generating human language
 - d) Translating languages
- 13) What is the main advantage of using robots in healthcare?
- a) Providing companionship to patients
 - b) Reducing the need for healthcare professionals
 - c) Increasing medical errors
 - d) Assisting in surgeries and patient care
- 14) What is the primary purpose of Convolutional Neural Networks (CNNs) in computer vision?
- a) Image compression
 - b) Object recognition and classification
 - c) Text-to-image synthesis
 - d) Data augmentation techniques

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data where necessary.
 4) Use of calculator is allowed.

Section – I

- Q.2 Attempt ant THREE 12**
 a) Define Artificial Intelligence and what are the Applications of AI.
 b) Explain how a problem solving agent works.
 c) Differentiate Informed & Uninformed search. Give examples.
 d) Explain the reasoning with default.
- Q.3 Attempt any TWO 16**
 a) Explain First Order Logic and Description Logic.
 b) Explain the following search strategies
 a) Best first search
 b) A* search
 c) Explain Intelligent Agents with their types.

Section – II

- Q.4 Attempt ant THREE 12**
 a) What are probabilistic language models and what can language models do?
 b) Explain Ambiguity and Disambiguation with an example.
 c) Differentiate Deep Learning Vs. Machine learning
 d) Explain applications of Robots in AI.
- Q.5 Attempt any TWO 16**
 a) What is Deep learning Network and explain CNN in detail?
 b) Explain applications of NLP.
 c) Explain use of Robots and Space Robotics with AI approach.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data where necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the major component/components for measuring the performance of problem solving?
 - a) Completeness
 - b) Optimality
 - c) Time and Space complexity
 - d) All of the mentioned
- 2) Which search strategy is also called as blind search?
 - a) Uninformed search
 - b) Informed search
 - c) Simple reflex search
 - d) All of the mentioned
- 3) Translate the following statement into FOL.
 "For every a, if a is a philosopher, then a is a scholar"
 - a) $\forall a \text{ philosopher}(a) \text{ scholar}(a)$
 - b) $\exists a \text{ philosopher}(a) \text{ scholar}(a)$
 - c) $\forall a \text{ philosopher}(a) \text{ scholar}(x)$
 - d) $\exists a \text{ philosopher}(x) \text{ scholar}(a)$
- 4) First Order Logic is also known as _____
 - a) First Order Predicate Calculus
 - b) Quantification Theory
 - c) Lower Order Calculus
 - d) All of the mentioned
- 5) What is the primary goal of Natural Language Processing (NLP)?
 - a) Understanding and processing human language
 - b) Simulating human-like conversation
 - c) Generating human language
 - d) Translating languages
- 6) What is the main advantage of using robots in healthcare?
 - a) Providing companionship to patients
 - b) Reducing the need for healthcare professionals
 - c) Increasing medical errors
 - d) Assisting in surgeries and patient care

- 7) What is the primary purpose of Convolutional Neural Networks (CNNs) in computer vision?
- a) Image compression
 - b) Object recognition and classification
 - c) Text-to-image synthesis
 - d) Data augmentation techniques
- 8) An AT agent perceives and acts upon the environment using ____.
- a) Sensors
 - b) Perceiver
 - c) Actuators
 - d) Both a and c
- 9) Which rule is applied for the Simple reflex agent?
- a) Simple-action rule
 - b) Simple & Condition-action rule
 - c) Condition-action rule
 - d) None of the above
- 10) The exploration problem is where ____
- a) Agent contains the knowledge of State and actions.
 - b) Agent does not contain the knowledge of the State and actions.
 - c) Only actions are known to the agent.
 - d) None of the above
- 11) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the ____
- a) Mobile
 - b) Non-Servo
 - c) Open loop
 - d) Intelligent
- 12) What is the main task of a problem-solving agent?
- a) Solve the given problem and reach to goal
 - b) To find out which sequence of action will get it to the goal state
 - c) All the mentioned
 - d) None of the mentioned
- 13) Search algorithm takes ____ as an input and returns ____ as an output.
- a) Input, output
 - b) Problem, solution
 - c) Solution, problem
 - d) Parameters, sequence of actions
- 14) The Set of actions for a problem in a state space is formulated by a ____
- a) Intermediate states
 - b) Initial state
 - c) Successor function, which takes current action and returns next immediate state
 - d) None of the above

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data where necessary.
 4) Use of calculator is allowed.

Section – I

- Q.2 Attempt ant THREE 12**
 a) Define Artificial Intelligence and what are the Applications of AI.
 b) Explain how a problem solving agent works.
 c) Differentiate Informed & Uninformed search. Give examples.
 d) Explain the reasoning with default.
- Q.3 Attempt any TWO 16**
 a) Explain First Order Logic and Description Logic.
 b) Explain the following search strategies
 a) Best first search
 b) A* search
 c) Explain Intelligent Agents with their types.

Section – II

- Q.4 Attempt ant THREE 12**
 a) What are probabilistic language models and what can language models do?
 b) Explain Ambiguity and Disambiguation with an example.
 c) Differentiate Deep Learning Vs. Machine learning
 d) Explain applications of Robots in AI.
- Q.5 Attempt any TWO 16**
 a) What is Deep learning Network and explain CNN in detail?
 b) Explain applications of NLP.
 c) Explain use of Robots and Space Robotics with AI approach.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data where necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) First Order Logic is also known as _____.
 - a) First Order Predicate Calculus
 - b) Quantification Theory
 - c) Lower Order Calculus
 - d) All of the mentioned
- 2) What is the primary goal of Natural Language Processing (NLP)?
 - a) Understanding and processing human language
 - b) Simulating human-like conversation
 - c) Generating human language
 - d) Translating languages
- 3) What is the main advantage of using robots in healthcare?
 - a) Providing companionship to patients
 - b) Reducing the need for healthcare professionals
 - c) Increasing medical errors
 - d) Assisting in surgeries and patient care
- 4) What is the primary purpose of Convolutional Neural Networks (CNNs) in computer vision?
 - a) Image compression
 - b) Object recognition and classification
 - c) Text-to-image synthesis
 - d) Data augmentation techniques
- 5) An AT agent perceives and acts upon the environment using _____.
 - a) Sensors
 - b) Perceiver
 - c) Actuators
 - d) Both a and c
- 6) Which rule is applied for the Simple reflex agent?
 - a) Simple-action rule
 - b) Simple & Condition-action rule
 - c) Condition-action rule
 - d) None of the above

- 7) The exploration problem is where _____
- Agent contains the knowledge of State and actions.
 - Agent does not contain the knowledge of the State and actions.
 - Only actions are known to the agent.
 - None of the above
- 8) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the _____
- Mobile
 - Non-Servo
 - Open loop
 - Intelligent
- 9) What is the main task of a problem-solving agent?
- Solve the given problem and reach to goal
 - To find out which sequence of action will get it to the goal state
 - All the mentioned
 - None of the mentioned
- 10) Search algorithm takes _____ as an input and returns _____ as an output.
- Input, output
 - Problem, solution
 - Solution, problem
 - Parameters, sequence of actions
- 11) The Set of actions for a problem in a state space is formulated by a _____
- Intermediate states
 - Initial state
 - Successor function, which takes current action and returns next immediate state
 - None of the above
- 12) What is the major component/components for measuring the performance of problem solving?
- Completeness
 - Optimality
 - Time and Space complexity
 - All of the mentioned
- 13) Which search strategy is also called as blind search?
- Uninformed search
 - Informed search
 - Simple reflex search
 - All of the mentioned
- 14) Translate the following statement into FOL.
"For every a, if a is a philosopher, then a is a scholar"
- $\forall a$ philosopher(a) scholar(a)
 - $\exists a$ philosopher(a) scholar(a)
 - $\forall a$ philosopher(a) scholar(x)
 - $\exists a$ philosopher(x) scholar(a)

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data where necessary.
 4) Use of calculator is allowed.

Section – I

- Q.2 Attempt ant THREE 12**
 a) Define Artificial Intelligence and what are the Applications of AI.
 b) Explain how a problem solving agent works.
 c) Differentiate Informed & Uninformed search. Give examples.
 d) Explain the reasoning with default.
- Q.3 Attempt any TWO 16**
 a) Explain First Order Logic and Description Logic.
 b) Explain the following search strategies
 a) Best first search
 b) A* search
 c) Explain Intelligent Agents with their types.

Section – II

- Q.4 Attempt ant THREE 12**
 a) What are probabilistic language models and what can language models do?
 b) Explain Ambiguity and Disambiguation with an example.
 c) Differentiate Deep Learning Vs. Machine learning
 d) Explain applications of Robots in AI.
- Q.5 Attempt any TWO 16**
 a) What is Deep learning Network and explain CNN in detail?
 b) Explain applications of NLP.
 c) Explain use of Robots and Space Robotics with AI approach.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data where necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Search algorithm takes _____ as an input and returns _____ as an output.
 - a) Input, output
 - b) Problem, solution
 - c) Solution, problem
 - d) Parameters, sequence of actions
- 2) The Set of actions for a problem in a state space is formulated by a _____.
 - a) Intermediate states
 - b) Initial state
 - c) Successor function, which takes current action and returns next immediate state
 - d) None of the above
- 3) What is the major component/components for measuring the performance of problem solving?

a) Completeness	b) Optimality
c) Time and Space complexity	d) All of the mentioned
- 4) Which search strategy is also called as blind search?

a) Uninformed search	b) Informed search
c) Simple reflex search	d) All of the mentioned
- 5) Translate the following statement into FOL.
"For every a, if a is a philosopher, then a is a scholar"
 - a) $\forall a \text{ philosopher}(a) \text{ scholar}(a)$
 - b) $\exists a \text{ philosopher}(a) \text{ scholar}(a)$
 - c) $\forall a \text{ philosopher}(a) \text{ scholar}(x)$
 - d) $\exists a \text{ philosopher}(x) \text{ scholar}(a)$
- 6) First Order Logic is also known as _____.

a) First Order Predicate Calculus	b) Quantification Theory
c) Lower Order Calculus	d) All of the mentioned

- 7) What is the primary goal of Natural Language Processing (NLP)?
- a) Understanding and processing human language
 - b) Simulating human-like conversation
 - c) Generating human language
 - d) Translating languages
- 8) What is the main advantage of using robots in healthcare?
- a) Providing companionship to patients
 - b) Reducing the need for healthcare professionals
 - c) Increasing medical errors
 - d) Assisting in surgeries and patient care
- 9) What is the primary purpose of Convolutional Neural Networks (CNNs) in computer vision?
- a) Image compression
 - b) Object recognition and classification
 - c) Text-to-image synthesis
 - d) Data augmentation techniques
- 10) An AT agent perceives and acts upon the environment using _____.
- a) Sensors
 - b) Perceiver
 - c) Actuators
 - d) Both a and c
- 11) Which rule is applied for the Simple reflex agent?
- a) Simple-action rule
 - b) Simple & Condition-action rule
 - c) Condition-action rule
 - d) None of the above
- 12) The exploration problem is where _____
- a) Agent contains the knowledge of State and actions.
 - b) Agent does not contain the knowledge of the State and actions.
 - c) Only actions are known to the agent.
 - d) None of the above
- 13) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the _____
- a) Mobile
 - b) Non-Servo
 - c) Open loop
 - d) Intelligent
- 14) What is the main task of a problem-solving agent?
- a) Solve the given problem and reach to goal
 - b) To find out which sequence of action will get it to the goal state
 - c) All the mentioned
 - d) None of the mentioned

Seat No.	
-------------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Artificial Intelligence and Applications (197044805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data where necessary.
 4) Use of calculator is allowed.

Section – I

- Q.2 Attempt ant THREE 12**
 a) Define Artificial Intelligence and what are the Applications of AI.
 b) Explain how a problem solving agent works.
 c) Differentiate Informed & Uninformed search. Give examples.
 d) Explain the reasoning with default.
- Q.3 Attempt any TWO 16**
 a) Explain First Order Logic and Description Logic.
 b) Explain the following search strategies
 a) Best first search
 b) A* search
 c) Explain Intelligent Agents with their types.

Section – II

- Q.4 Attempt ant THREE 12**
 a) What are probabilistic language models and what can language models do?
 b) Explain Ambiguity and Disambiguation with an example.
 c) Differentiate Deep Learning Vs. Machine learning
 d) Explain applications of Robots in AI.
- Q.5 Attempt any TWO 16**
 a) What is Deep learning Network and explain CNN in detail?
 b) Explain applications of NLP.
 c) Explain use of Robots and Space Robotics with AI approach.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct options.**14**

- 1) In SDSE plaintext block size is _____ bits.
 - a) 8
 - b) 10
 - c) 64
 - d) 128
- 2) What is the cipher text of "we will meet" using Caesar cipher assume k=3.
 - a) zhzlppphhp
 - b) zlzhooophhw
 - c) zhzloopphhw
 - d) zgzloopgggu
- 3) A _____ is a trusted third party that assigns a symmetric key to two parties.
 - a) KDC
 - b) CA
 - c) KDD
 - d) None of above
- 4) The _____ is the only cryptosystem that exhibits what is referred to as perfect secrecy.
 - a) Rail fence
 - b) One-time pad
 - c) Playfair
 - d) Caesar cipher
- 5) If the message includes a _____ the receiver is assured that the message has not been delayed beyond that normally expected for network transit.
 - a) Shared Key
 - b) Timestamp
 - c) Error detection code
 - d) Sequence number
- 6) In asymmetric key cryptography, the private key is kept by _____.
 - a) Sender
 - b) Receiver
 - c) Sender & Receiver
 - d) All the connected device to network
- 7) In the _____ mode, IPSec protects the whole IP packet, including the original IP header.
 - a) Transport
 - b) Tunnel
 - c) AH
 - d) ESP

- 8) In _____ the cryptographic algorithms and secrets are sent with the message.
- a) IPSec
 - b) SSL
 - c) TLS
 - d) PGP
- 9) The secure socket layer provides _____
- a) Encryption of messages sent by both client and server
 - b) Server authentication
 - c) Optional client authentication
 - d) All of these
- 10) Programs that multiply like viruses but spread from computer to computer are called as: _____
- a) Worms
 - b) Virus
 - c) Boot
 - d) None of these
- 11) What type of attack relies on the trusting nature of employees and the art of deception?
- a) Social Engineering
 - b) Fraud
 - c) Phishing
 - d) Dumpster Diving
- 12) The use of the Internet or other electronic means to stalk or harass an individual, a group of individuals, or an organization is termed: _____
- a) Cyberspace
 - b) Cyber stalking
 - c) Pornography
 - d) None of these
- 13) Which of the following is a cybercrime?
- a) Hacking
 - b) Worm attack
 - c) Virus attack
 - d) All of these
- 14) Encapsulating Security Payload (ESP) belongs to which Internet Security Protocol?
- a) Secure Socket Layer Protocol
 - b) Secure IP Protocol
 - c) Secure Http Protocol
 - d) Transport Layer Security Protocol

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Explain the model of network security with diagram.
 - b) Explain the Rail fence transposition technique with example.
 - c) Explain with diagram Principles of public key cryptography.
 - d) Describe Secure Socket Layer.
 - e) Write short note on secure shell (SSH).
 - f) Explain in detail X.509 certificate.
- Q.3 Attempt any two of the following questions. 12**
- a) Describe RSA algorithm with help of example.
 - b) Explain the working of DES with diagram.
 - c) Explain network access control in detail.

Section – II

- Q.4 Attempt any four of the following question. 16**
- a) Explain the Functionality of S/MIME.
 - b) Write a short note on different applications of IPsecurity.
 - c) Explain in detail classifications of cybercrime.
 - d) What is Buffer overflow and how to minimize it?
 - e) Differentiate between Virus and Worm
 - f) Write a brief note on Wireless Security.
- Q.5 Attempt any two of the following questions. 12**
- a) Explain the Cybercrime: The legal and an Indian perspective
 - b) What is Phishing and Identity Theft explain in brief?
 - c) What is ESP? Give the format of ESP packet.

Seat No.	
----------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct options.**14**

- 1) In _____ the cryptographic algorithms and secrets are sent with the message.
 - a) IPsec
 - b) SSL
 - c) TLS
 - d) PGP
- 2) The secure socket layer provides _____.
 - a) Encryption of messages sent by both client and server
 - b) Server authentication
 - c) Optional client authentication
 - d) All of these
- 3) Programs that multiply like viruses but spread from computer to computer are called as: _____.
 - a) Worms
 - b) Virus
 - c) Boot
 - d) None of these
- 4) What type of attack relies on the trusting nature of employees and the art of deception?
 - a) Social Engineering
 - b) Fraud
 - c) Phishing
 - d) Dumpster Diving
- 5) The use of the Internet or other electronic means to stalk or harass an individual, a group of individuals, or an organization is termed: _____.
 - a) Cyberspace
 - b) Cyber stalking
 - c) Pornography
 - d) None of these
- 6) Which of the following is a cybercrime?
 - a) Hacking
 - b) Worm attack
 - c) Virus attack
 - d) All of these
- 7) Encapsulating Security Payload (ESP) belongs to which Internet Security Protocol?
 - a) Secure Socket Layer Protocol
 - b) Secure IP Protocol
 - c) Secure Http Protocol
 - d) Transport Layer Security Protocol

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Explain the model of network security with diagram.
 - b) Explain the Rail fence transposition technique with example.
 - c) Explain with diagram Principles of public key cryptography.
 - d) Describe Secure Socket Layer.
 - e) Write short note on secure shell (SSH).
 - f) Explain in detail X.509 certificate.
- Q.3 Attempt any two of the following questions. 12**
- a) Describe RSA algorithm with help of example.
 - b) Explain the working of DES with diagram.
 - c) Explain network access control in detail.

Section – II

- Q.4 Attempt any four of the following question. 16**
- a) Explain the Functionality of S/MIME.
 - b) Write a short note on different applications of IPsecurity.
 - c) Explain in detail classifications of cybercrime.
 - d) What is Buffer overflow and how to minimize it?
 - e) Differentiate between Virus and Worm
 - f) Write a brief note on Wireless Security.
- Q.5 Attempt any two of the following questions. 12**
- a) Explain the Cybercrime: The legal and an Indian perspective
 - b) What is Phishing and Identity Theft explain in brief?
 - c) What is ESP? Give the format of ESP packet.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct options.

14

- 1) What type of attack relies on the trusting nature of employees and the art of deception?
 - a) Social Engineering
 - b) Fraud
 - c) Phishing
 - d) Dumpster Diving
- 2) The use of the Internet or other electronic means to stalk or harass an individual, a group of individuals, or an organization is termed: _____
 - a) Cyberspace
 - b) Cyber stalking
 - c) Pornography
 - d) None of these
- 3) Which of the following is a cybercrime?
 - a) Hacking
 - b) Worm attack
 - c) Virus attack
 - d) All of these
- 4) Encapsulating Security Payload (ESP) belongs to which Internet Security Protocol?
 - a) Secure Socket Layer Protocol
 - b) Secure IP Protocol
 - c) Secure Http Protocol
 - d) Transport Layer Security Protocol
- 5) In SDSE plaintext block size is _____ bits.
 - a) 8
 - b) 10
 - c) 64
 - d) 128
- 6) What is the cipher text of "we will meet" using Caesar cipher assume k=3.
 - a) zhzlppphhp
 - b) zlzhooophhw
 - c) zhzloopphhw
 - d) zgzloopgggu
- 7) A _____ is a trusted third party that assigns a symmetric key to two parties.
 - a) KDC
 - b) CA
 - c) KDD
 - d) None of above
- 8) The _____ is the only cryptosystem that exhibits what is referred to as perfect secrecy.
 - a) Rail fence
 - b) One-time pad
 - c) Playfair
 - d) Caesar cipher

- 9) If the message includes a _____ the receiver is assured that the message has not been delayed beyond that normally expected for network transit.
- a) Shared Key
 - b) Timestamp
 - c) Error detection code
 - d) Sequence number
- 10) In asymmetric key cryptography, the private key is kept by _____.
- a) Sender
 - b) Receiver
 - c) Sender & Receiver
 - d) All the connected device to network
- 11) In the _____ mode, IPSec protects the whole IP packet, including the original IP header.
- a) Transport
 - b) Tunnel
 - c) AH
 - d) ESP
- 12) In _____ the cryptographic algorithms and secrets are sent with the message.
- a) IPSec
 - b) SSL
 - c) TLS
 - d) PGP
- 13) The secure socket layer provides _____
- a) Encryption of messages sent by both client and server
 - b) Server authentication
 - c) Optional client authentication
 - d) All of these
- 14) Programs that multiply like viruses but spread from computer to computer are called as: _____
- a) Worms
 - b) Virus
 - c) Boot
 - d) None of these

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Explain the model of network security with diagram.
 - b) Explain the Rail fence transposition technique with example.
 - c) Explain with diagram Principles of public key cryptography.
 - d) Describe Secure Socket Layer.
 - e) Write short note on secure shell (SSH).
 - f) Explain in detail X.509 certificate.
- Q.3 Attempt any two of the following questions. 12**
- a) Describe RSA algorithm with help of example.
 - b) Explain the working of DES with diagram.
 - c) Explain network access control in detail.

Section – II

- Q.4 Attempt any four of the following question. 16**
- a) Explain the Functionality of S/MIME.
 - b) Write a short note on different applications of IPsecurity.
 - c) Explain in detail classifications of cybercrime.
 - d) What is Buffer overflow and how to minimize it?
 - e) Differentiate between Virus and Worm
 - f) Write a brief note on Wireless Security.
- Q.5 Attempt any two of the following questions. 12**
- a) Explain the Cybercrime: The legal and an Indian perspective
 - b) What is Phishing and Identity Theft explain in brief?
 - c) What is ESP? Give the format of ESP packet.

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct options.**14**

- 1) In asymmetric key cryptography, the private key is kept by _____.
 a) Sender
 b) Receiver
 c) Sender & Receiver
 d) All the connected device to network
- 2) In the ____ mode, IPSec protects the whole IP packet, including the original IP header.
 a) Transport
 b) Tunnel
 c) AH
 d) ESP
- 3) In _____ the cryptographic algorithms and secrets are sent with the message.
 a) IPSec
 b) SSL
 c) TLS
 d) PGP
- 4) The secure socket layer provides _____.
 a) Encryption of messages sent by both client and server
 b) Server authentication
 c) Optional client authentication
 d) All of these
- 5) Programs that multiply like viruses but spread from computer to computer are called as: _____.
 a) Worms
 b) Virus
 c) Boot
 d) None of these
- 6) What type of attack relies on the trusting nature of employees and the art of deception?
 a) Social Engineering
 b) Fraud
 c) Phishing
 d) Dumpster Diving
- 7) The use of the Internet or other electronic means to stalk or harass an individual, a group of individuals, or an organization is termed: _____.
 a) Cyberspace
 b) Cyber stalking
 c) Pornography
 d) None of these

- 8) Which of the following is a cybercrime?
a) Hacking
b) Worm attack
c) Virus attack
d) All of these
- 9) Encapsulating Security Payload (ESP) belongs to which Internet Security Protocol?
a) Secure Socket Layer Protocol
b) Secure IP Protocol
c) Secure Http Protocol
d) Transport Layer Security Protocol
- 10) In SDSE plaintext block size is _____ bits.
a) 8
b) 10
c) 64
d) 128
- 11) What is the cipher text of "we will meet" using Caesar cipher assume $k=3$.
a) zhzlppphhp
b) zlzhooophhw
c) zhzloopphhw
d) zgzloopgggu
- 12) A _____ is a trusted third party that assigns a symmetric key to two parties.
a) KDC
b) CA
c) KDD
d) None of above
- 13) The _____ is the only cryptosystem that exhibits what is referred to as perfect secrecy.
a) Rail fence
b) One-time pad
c) Playfair
d) Caesar cipher
- 14) If the message includes a _____ the receiver is assured that the message has not been delayed beyond that normally expected for network transit.
a) Shared Key
b) Timestamp
c) Error detection code
d) Sequence number

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS AND TELECOMMUNICATION ENGINEERING
Network Security (197044806)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following questions. 16**
- a) Explain the model of network security with diagram.
 - b) Explain the Rail fence transposition technique with example.
 - c) Explain with diagram Principles of public key cryptography.
 - d) Describe Secure Socket Layer.
 - e) Write short note on secure shell (SSH).
 - f) Explain in detail X.509 certificate.
- Q.3 Attempt any two of the following questions. 12**
- a) Describe RSA algorithm with help of example.
 - b) Explain the working of DES with diagram.
 - c) Explain network access control in detail.

Section – II

- Q.4 Attempt any four of the following question. 16**
- a) Explain the Functionality of S/MIME.
 - b) Write a short note on different applications of IPsecurity.
 - c) Explain in detail classifications of cybercrime.
 - d) What is Buffer overflow and how to minimize it?
 - e) Differentiate between Virus and Worm
 - f) Write a brief note on Wireless Security.
- Q.5 Attempt any two of the following questions. 12**
- a) Explain the Cybercrime: The legal and an Indian perspective
 - b) What is Phishing and Identity Theft explain in brief?
 - c) What is ESP? Give the format of ESP packet.

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Data analytics refers to a _____
 - a) Analyzing Data
 - b) Scientific approach to get insights from the data or data sets
 - c) Find the hidden patterns from data
 - d) All of the mentioned above
- 2) Data analytics applies on _____
 - a) Raw Data
 - b) Algorithm
 - c) Scientific method
 - d) None of the mentioned above
- 3) _____ means how much the data is reliable.
 - a) Velocity
 - b) Volume
 - c) Value
 - d) Veracity
- 4) Amongst which of the following is/are the examples of structured data?
 - a) Videos
 - b) Employee's name, employee's id, employee's age
 - c) Audio files
 - d) All of the mentioned above
- 5) Descriptive statistics is used _____
 - a) To develop information regarding the product sample using the measured data
 - b) To measure the data for a sample
 - c) To draw conclusions about the population
 - d) To control the variation
- 6) What is KDD?
 - a) Knowledge Discovery Database
 - b) Knowledge Discovery Data
 - c) Knowledge Data Definition
 - d) Knowledge Data House

- 7) Examples of Nominal can be _____
- a) ID Numbers, eye color, zip codes
 - b) Rankings, taste of potato chips, grades, height
 - c) Calendar dates, temperatures in Celsius or Fahrenheit, phone numbers
 - d) The temperature in Kelvin, length, time, counts
- 8) Which are pros of data visualization?
- a) It can be accessed quickly by a wider audience
 - b) It can misrepresent information
 - c) It can be distracting
 - d) None of the above
- 9) _____ plot the number of occurrences of a given variable in a set of data.
- a) Treemaps
 - b) Histograms
 - c) Pie charts
 - d) None of the mentioned above
- 10) In a week the prices of a bag of rice were 350, 280, 340, 290, 320, 310, 300. The range is _____.
- a) 60
 - b) 90
 - c) 70
 - d) 100
- 11) What are some examples of data quality problems?
- a) Noise and outliers
 - b) Duplicate data
 - c) Missing values
 - d) All of the Above
- 12) In _____, the attribute data are scaled so as to fall within a smaller range, such as -1.0 to 1.0. or 0.0 to 1.0.
- a) Aggregation
 - b) Binning
 - c) Clustering
 - d) Normalization
- 13) In R language, a vector is defined that it can only contain objects of the _____
- a) Same class
 - b) Different class
 - c) Similar class
 - d) Any class
- 14) The correct command to load the library dplyr is _____
- a) library(dplyr)
 - b) Library("dplyr ")
 - c) install.library(dplyr)
 - d) install.library("dplyr ")

Seat No.	
----------	--

Set **P**

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following.

16

- Compute Mean, Median, Inter Quartile Range, Standard deviation for the data relating to the marks of 8 students in an examination given below 25, 48, 32, 52, 21, 64, 29, and 57
- List and define Location univariate statistic parameters and dispersion univariate statistic parameters
- What are the most appropriate scales for the following examples? Also, Justify the choice.
 - university students' exam marks
 - level of urgency in the emergency room of a hospital
 - classification of the animals in a zoo
 - Carbon dioxide levels in the atmosphere
- Write a short note on Descriptive Univariate Statistics.
- With suitable example explain Conversion from the nominal scale to binary values.
- List and explain the characteristics of big data.

Q.3 Solve any two of the following.

12

- What insight of data we get from its Histogram? Draw a histogram for the "Weight" and Company attribute from Contact list Table 1 given below

Contact	Maxtemp	Weight	Height	Years	Gender	Company
Andrew	25	77	175	10	M	Good
Bernhard	31	110	195	12	M	Good
Carolina	15	70	172	2	F	Bad
Dennis	20	85	180	16	M	Good
Eve	10	65	168	0	F	Bad
Fred	12	75	173	6	M	Good
Gwyneth	16	75	180	3	F	Bad
Hayden	26	63	165	2	F	Bad
Irene	15	55	158	5	F	Bad
James	21	66	163	14	M	Good
Kevin	30	95	190	1	M	Bad
Lea	13	72	172	11	F	Good
Marcus	8	83	185	3	F	Bad
Nigel	12	115	192	15	M	Good

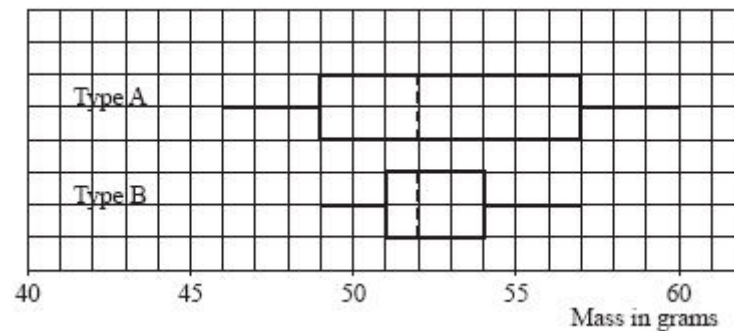
- b) Why dimensionality reduction is required as preprocessing? How PCA is used for dimensionality reduction.
- c) Discuss and give the solution for the following problem associated with data quality
- Missing Values
 - Redundant Data
 - Inconsistent data
 - Noisy data
 - Outliers

Section – II

Q.4 Solve any four of the following.

16

- a) Write a short note on Applications of Big data analytics
- b) Explain any four data types with an example in R.
- c) What are the objectives for using data visualization?
- d) Write R program to Create a matrix and show
- i) how items can be accessed from rows and columns?
 - ii) how to add rows and columns?
- e) A gardener collected data on two types of tomato. The box and whisker plot below shows data for the masses in grams of the tomatoes in the two samples. Compare and contrast the two types and advise the gardener which type of tomato he should grow in future.



- f) Write a short note on Applications of Big data analytics

Q.5 Solve any two of the following.

a) Write statement wise results for the following R Code

```
i <- 1
sport <- "football"
flag <- TRUE
class(i)
typeof(i)
class(sport)
typeof(sport)
class(flag)
typeof(flag)
is.vector(i)
is.vector(flag)
is.vector(sport)
u <- c("red", "yellow", "blue")
u
u[1]
v <- 1:5
v
sum(v)
w <- v * 2
w
w[3]
z <- v + w
z
z > 8
z[z > 8]
z[z > 8 | z < 5]
```

b) Explain four Data Visualization techniques Using R.

c) Draw and explain typical architecture of big data analytics.

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which are pros of data visualization?
 - a) It can be accessed quickly by a wider audience
 - b) It can misrepresent information
 - c) It can be distracting
 - d) None of the above
- 2) _____ plot the number of occurrences of a given variable in a set of data.
 - a) Treemaps
 - b) Histograms
 - c) Pie charts
 - d) None of the mentioned above
- 3) In a week the prices of a bag of rice were 350, 280, 340, 290, 320, 310, 300. The range is _____.
 - a) 60
 - b) 90
 - c) 70
 - d) 100
- 4) What are some examples of data quality problems?
 - a) Noise and outliers
 - b) Duplicate data
 - c) Missing values
 - d) All of the Above
- 5) In _____, the attribute data are scaled so as to fall within a smaller range, such as -1.0 to 1.0. or 0.0 to 1.0.
 - a) Aggregation
 - b) Binning
 - c) Clustering
 - d) Normalization
- 6) In R language, a vector is defined that it can only contain objects of the _____.
 - a) Same class
 - b) Different class
 - c) Similar class
 - d) Any class
- 7) The correct command to load the library dplyr is _____.
 - a) library(dplyr)
 - b) Library("dplyr ")
 - c) install.library(dplyr)
 - d) install.library("dplyr ")
- 8) Data analytics refers to a _____.
 - a) Analyzing Data
 - b) Scientific approach to get insights from the data or data sets
 - c) Find the hidden patterns from data
 - d) All of the mentioned above

- 9) Data analytics applies on _____
- a) Raw Data
 - b) Algorithm
 - c) Scientific method
 - d) None of the mentioned above
- 10) _____ means how much the data is reliable.
- a) Velocity
 - b) Volume
 - c) Value
 - d) Veracity
- 11) Amongst which of the following is/are the examples of structured data?
- a) Videos
 - b) Employee's name, employee's id, employee's age
 - c) Audio files
 - d) All of the mentioned above
- 12) Descriptive statistics is used _____
- a) To develop information regarding the product sample using the measured data
 - b) To measure the data for a sample
 - c) To draw conclusions about the population
 - d) To control the variation
- 13) What is KDD?
- a) Knowledge Discovery Database
 - b) Knowledge Discovery Data
 - c) Knowledge Data Definition
 - d) Knowledge Data House
- 14) Examples of Nominal can be _____
- a) ID Numbers, eye color, zip codes
 - b) Rankings, taste of potato chips, grades, height
 - c) Calendar dates, temperatures in Celsius or Fahrenheit, phone numbers
 - d) The temperature in Kelvin, length, time, counts

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following.

16

- Compute Mean, Median, Inter Quartile Range, Standard deviation for the data relating to the marks of 8 students in an examination given below
25, 48, 32, 52, 21, 64, 29, and 57
- List and define Location univariate statistic parameters and dispersion univariate statistic parameters
- What are the most appropriate scales for the following examples? Also, Justify the choice.
 - university students' exam marks
 - level of urgency in the emergency room of a hospital
 - classification of the animals in a zoo
 - Carbon dioxide levels in the atmosphere
- Write a short note on Descriptive Univariate Statistics.
- With suitable example explain Conversion from the nominal scale to binary values.
- List and explain the characteristics of big data.

Q.3 Solve any two of the following.

12

- What insight of data we get from its Histogram? Draw a histogram for the "Weight" and Company attribute from Contact list Table 1 given below

Contact	Maxtemp	Weight	Height	Years	Gender	Company
Andrew	25	77	175	10	M	Good
Bernhard	31	110	195	12	M	Good
Carolina	15	70	172	2	F	Bad
Dennis	20	85	180	16	M	Good
Eve	10	65	168	0	F	Bad
Fred	12	75	173	6	M	Good
Gwyneth	16	75	180	3	F	Bad
Hayden	26	63	165	2	F	Bad
Irene	15	55	158	5	F	Bad
James	21	66	163	14	M	Good
Kevin	30	95	190	1	M	Bad
Lea	13	72	172	11	F	Good
Marcus	8	83	185	3	F	Bad
Nigel	12	115	192	15	M	Good

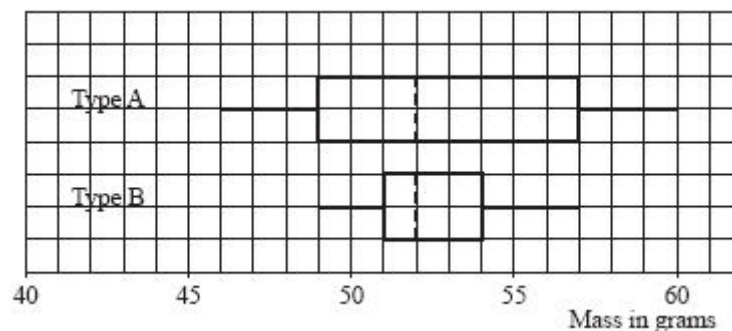
- b) Why dimensionality reduction is required as preprocessing? How PCA is used for dimensionality reduction.
- c) Discuss and give the solution for the following problem associated with data quality
- Missing Values
 - Redundant Data
 - Inconsistent data
 - Noisy data
 - Outliers

Section – II

Q.4 Solve any four of the following.

16

- a) Write a short note on Applications of Big data analytics
- b) Explain any four data types with an example in R.
- c) What are the objectives for using data visualization?
- d) Write R program to Create a matrix and show
- i) how items can be accessed from rows and columns?
 - ii) how to add rows and columns?
- e) A gardener collected data on two types of tomato. The box and whisker plot below shows data for the masses in grams of the tomatoes in the two samples. Compare and contrast the two types and advise the gardener which type of tomato he should grow in future.



- f) Write a short note on Applications of Big data analytics

Q.5 Solve any two of the following.

a) Write statement wise results for the following R Code

```
i <- 1
sport <- "football"
flag <- TRUE
class(i)
typeof(i)
class(sport)
typeof(sport)
class(flag)
typeof(flag)
is.vector(i)
is.vector(flag)
is.vector(sport)
u <- c("red", "yellow", "blue")
u
u[1]
v <- 1:5
v
sum(v)
w <- v * 2
w
w[3]
z <- v + w
z
z > 8
z[z > 8]
z[z > 8 | z < 5]
```

b) Explain four Data Visualization techniques Using R.

c) Draw and explain typical architecture of big data analytics.

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What are some examples of data quality problems?
 - a) Noise and outliers
 - b) Duplicate data
 - c) Missing values
 - d) All of the Above
- 2) In _____, the attribute data are scaled so as to fall within a smaller range, such as -1.0 to 1.0. or 0.0 to 1.0.
 - a) Aggregation
 - b) Binning
 - c) Clustering
 - d) Normalization
- 3) In R language, a vector is defined that it can only contain objects of the _____.
 - a) Same class
 - b) Different class
 - c) Similar class
 - d) Any class
- 4) The correct command to load the library dplyr is _____.
 - a) library(dplyr)
 - b) Library("dplyr ")
 - c) install.library(dplyr)
 - d) install.library("dplyr ")
- 5) Data analytics refers to a _____.
 - a) Analyzing Data
 - b) Scientific approach to get insights from the data or data sets
 - c) Find the hidden patterns from data
 - d) All of the mentioned above
- 6) Data analytics applies on _____.
 - a) Raw Data
 - b) Algorithm
 - c) Scientific method
 - d) None of the mentioned above
- 7) _____ means how much the data is reliable.
 - a) Velocity
 - b) Volume
 - c) Value
 - d) Veracity

- 8) Amongst which of the following is/are the examples of structured data?
- Videos
 - Employee's name, employee's id, employee's age
 - Audio files
 - All of the mentioned above
- 9) Descriptive statistics is used _____
- To develop information regarding the product sample using the measured data
 - To measure the data for a sample
 - To draw conclusions about the population
 - To control the variation
- 10) What is KDD?
- Knowledge Discovery Database
 - Knowledge Discovery Data
 - Knowledge Data Definition
 - Knowledge Data House
- 11) Examples of Nominal can be _____
- ID Numbers, eye color, zip codes
 - Rankings, taste of potato chips, grades, height
 - Calendar dates, temperatures in Celsius or Fahrenheit, phone numbers
 - The temperature in Kelvin, length, time, counts
- 12) Which are pros of data visualization?
- It can be accessed quickly by a wider audience
 - It can misrepresent information
 - It can be distracting
 - None of the above
- 13) _____ plot the number of occurrences of a given variable in a set of data.
- Treemaps
 - Histograms
 - Pie charts
 - None of the mentioned above
- 14) In a week the prices of a bag of rice were 350, 280, 340, 290, 320, 310, 300. The range is _____.
- 60
 - 90
 - 70
 - 100

Seat No.	
----------	--

Set **R**

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following.

16

- Compute Mean, Median, Inter Quartile Range, Standard deviation for the data relating to the marks of 8 students in an examination given below 25, 48, 32, 52, 21, 64, 29, and 57
- List and define Location univariate statistic parameters and dispersion univariate statistic parameters
- What are the most appropriate scales for the following examples? Also, Justify the choice.
 - university students' exam marks
 - level of urgency in the emergency room of a hospital
 - classification of the animals in a zoo
 - Carbon dioxide levels in the atmosphere
- Write a short note on Descriptive Univariate Statistics.
- With suitable example explain Conversion from the nominal scale to binary values.
- List and explain the characteristics of big data.

Q.3 Solve any two of the following.

12

- What insight of data we get from its Histogram? Draw a histogram for the "Weight" and Company attribute from Contact list Table 1 given below

Contact	Maxtemp	Weight	Height	Years	Gender	Company
Andrew	25	77	175	10	M	Good
Bernhard	31	110	195	12	M	Good
Carolina	15	70	172	2	F	Bad
Dennis	20	85	180	16	M	Good
Eve	10	65	168	0	F	Bad
Fred	12	75	173	6	M	Good
Gwyneth	16	75	180	3	F	Bad
Hayden	26	63	165	2	F	Bad
Irene	15	55	158	5	F	Bad
James	21	66	163	14	M	Good
Kevin	30	95	190	1	M	Bad
Lea	13	72	172	11	F	Good
Marcus	8	83	185	3	F	Bad
Nigel	12	115	192	15	M	Good

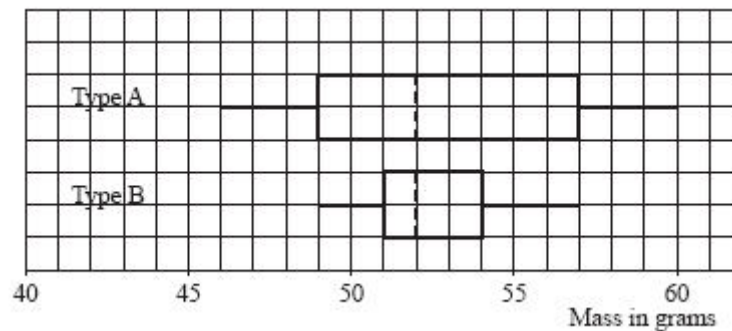
- b) Why dimensionality reduction is required as preprocessing? How PCA is used for dimensionality reduction.
- c) Discuss and give the solution for the following problem associated with data quality
- Missing Values
 - Redundant Data
 - Inconsistent data
 - Noisy data
 - Outliers

Section – II

Q.4 Solve any four of the following.

16

- a) Write a short note on Applications of Big data analytics
- b) Explain any four data types with an example in R.
- c) What are the objectives for using data visualization?
- d) Write R program to Create a matrix and show
- i) how items can be accessed from rows and columns?
 - ii) how to add rows and columns?
- e) A gardener collected data on two types of tomato. The box and whisker plot below shows data for the masses in grams of the tomatoes in the two samples. Compare and contrast the two types and advise the gardener which type of tomato he should grow in future.



- f) Write a short note on Applications of Big data analytics

Q.5 Solve any two of the following.

a) Write statement wise results for the following R Code

```
i <- 1
sport <- "football"
flag <- TRUE
class(i)
typeof(i)
class(sport)
typeof(sport)
class(flag)
typeof(flag)
is.vector(i)
is.vector(flag)
is.vector(sport)
u <- c("red", "yellow", "blue")
u
u[1]
v <- 1:5
v
sum(v)
w <- v * 2
w
w[3]
z <- v + w
z
z > 8
z[z > 8]
z[z > 8 | z < 5]
```

b) Explain four Data Visualization techniques Using R.

c) Draw and explain typical architecture of big data analytics.

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)

Day & Date: Monday, 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is KDD?
 - a) Knowledge Discovery Database
 - b) Knowledge Discovery Data
 - c) Knowledge Data Definition
 - d) Knowledge Data House
- 2) Examples of Nominal can be _____
 - a) ID Numbers, eye color, zip codes
 - b) Rankings, taste of potato chips, grades, height
 - c) Calendar dates, temperatures in Celsius or Fahrenheit, phone numbers
 - d) The temperature in Kelvin, length, time, counts
- 3) Which are pros of data visualization?
 - a) It can be accessed quickly by a wider audience
 - b) It can misrepresent information
 - c) It can be distracting
 - d) None of the above
- 4) _____ plot the number of occurrences of a given variable in a set of data.
 - a) Treemaps
 - b) Histograms
 - c) Pie charts
 - d) None of the mentioned above
- 5) In a week the prices of a bag of rice were 350, 280, 340, 290, 320, 310, 300. The range is _____.
 - a) 60
 - b) 90
 - c) 70
 - d) 100
- 6) What are some examples of data quality problems?
 - a) Noise and outliers
 - b) Duplicate data
 - c) Missing values
 - d) All of the Above
- 7) In _____, the attribute data are scaled so as to fall within a smaller range, such as -1.0 to 1.0. or 0.0 to 1.0.
 - a) Aggregation
 - b) Binning
 - c) Clustering
 - d) Normalization

- 8) In R language, a vector is defined that it can only contain objects of the _____
- a) Same class
 - b) Different class
 - c) Similar class
 - d) Any class
- 9) The correct command to load the library dplyr is _____
- a) library(dplyr)
 - b) Library("dplyr ")
 - c) install.library(dplyr)
 - d) install.library("dplyr ")
- 10) Data analytics refers to a _____
- a) Analyzing Data
 - b) Scientific approach to get insights from the data or data sets
 - c) Find the hidden patterns from data
 - d) All of the mentioned above
- 11) Data analytics applies on _____
- a) Raw Data
 - b) Algorithm
 - c) Scientific method
 - d) None of the mentioned above
- 12) _____ means how much the data is reliable.
- a) Velocity
 - b) Volume
 - c) Value
 - d) Veracity
- 13) Amongst which of the following is/are the examples of structured data?
- a) Videos
 - b) Employee's name, employee's id, employee's age
 - c) Audio files
 - d) All of the mentioned above
- 14) Descriptive statistics is used _____
- a) To develop information regarding the product sample using the measured data
 - b) To measure the data for a sample
 - c) To draw conclusions about the population
 - d) To control the variation

Seat No.	
----------	--

Set **S**

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRONICS & TELECOMMUNICATION ENGINEERING
Data Analytics (197044807)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following.

16

- Compute Mean, Median, Inter Quartile Range, Standard deviation for the data relating to the marks of 8 students in an examination given below 25, 48, 32, 52, 21, 64, 29, and 57
- List and define Location univariate statistic parameters and dispersion univariate statistic parameters
- What are the most appropriate scales for the following examples? Also, Justify the choice.
 - university students' exam marks
 - level of urgency in the emergency room of a hospital
 - classification of the animals in a zoo
 - Carbon dioxide levels in the atmosphere
- Write a short note on Descriptive Univariate Statistics.
- With suitable example explain Conversion from the nominal scale to binary values.
- List and explain the characteristics of big data.

Q.3 Solve any two of the following.

12

- What insight of data we get from its Histogram? Draw a histogram for the "Weight" and Company attribute from Contact list Table 1 given below

Contact	Maxtemp	Weight	Height	Years	Gender	Company
Andrew	25	77	175	10	M	Good
Bernhard	31	110	195	12	M	Good
Carolina	15	70	172	2	F	Bad
Dennis	20	85	180	16	M	Good
Eve	10	65	168	0	F	Bad
Fred	12	75	173	6	M	Good
Gwyneth	16	75	180	3	F	Bad
Hayden	26	63	165	2	F	Bad
Irene	15	55	158	5	F	Bad
James	21	66	163	14	M	Good
Kevin	30	95	190	1	M	Bad
Lea	13	72	172	11	F	Good
Marcus	8	83	185	3	F	Bad
Nigel	12	115	192	15	M	Good

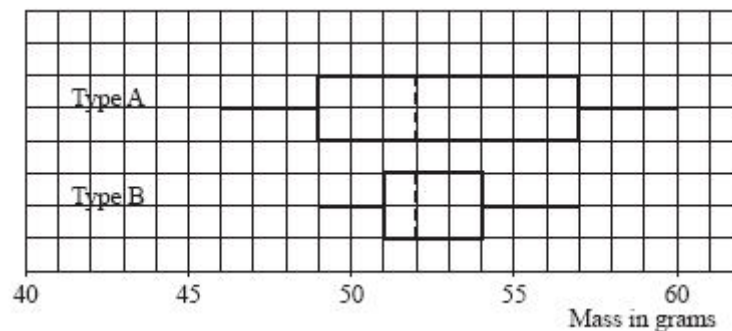
- b) Why dimensionality reduction is required as preprocessing? How PCA is used for dimensionality reduction.
- c) Discuss and give the solution for the following problem associated with data quality
- Missing Values
 - Redundant Data
 - Inconsistent data
 - Noisy data
 - Outliers

Section – II

Q.4 Solve any four of the following.

16

- a) Write a short note on Applications of Big data analytics
- b) Explain any four data types with an example in R.
- c) What are the objectives for using data visualization?
- d) Write R program to Create a matrix and show
- i) how items can be accessed from rows and columns?
 - ii) how to add rows and columns?
- e) A gardener collected data on two types of tomato. The box and whisker plot below shows data for the masses in grams of the tomatoes in the two samples. Compare and contrast the two types and advise the gardener which type of tomato he should grow in future.



- f) Write a short note on Applications of Big data analytics

Q.5 Solve any two of the following.

a) Write statement wise results for the following R Code

```
i <- 1
sport <- "football"
flag <- TRUE
class(i)
typeof(i)
class(sport)
typeof(sport)
class(flag)
typeof(flag)
is.vector(i)
is.vector(flag)
is.vector(sport)
u <- c("red", "yellow", "blue")
u
u[1]
v <- 1:5
v
sum(v)
w <- v * 2
w
w[3]
z <- v + w
z
z > 8
z[z > 8]
z[z > 8 | z < 5]
```

b) Explain four Data Visualization techniques Using R.

c) Draw and explain typical architecture of big data analytics.

- 7) Round robin scheduling falls under the category of:
a) Non preemptive scheduling b) Preemptive scheduling
c) None of these d) Both (a) and (b)
- 8) What is the reusable resource?
a) that can be used by one process at a time and is not depleted by that use
b) that can be used by more than one process at a time
c) that can be shared between various threads
d) none of the mentioned
- 9) Which one of the following is the deadlock avoidance algorithm?
a) banker's algorithm
b) round-robin algorithm
c) elevator algorithm
d) kern's algorithm
- 10) CPU fetches the instruction from memory according to the value of _____
a) program counter b) status register
c) instruction register d) program status word
- 11) Which one of the following is the address generated by CPU?
a) physical address b) absolute address
c) logical address d) none of the mentioned
- 12) _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
a) Paging b) Demand paging
c) Segmentation d) Swapping
- 13) In FIFO page replacement algorithm, when a page must be replaced?
a) oldest page is chosen b) newest page is chosen
c) random page is chosen d) none of the mentioned
- 14) A process is thrashing if _____
a) it is spending more time paging than executing
b) it is spending less time paging than executing
c) page fault occurs
d) swapping cannot take place

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Operating Systems (BTN05502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All Questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three. 12

- a) Explain Priority Scheduling with example.
- b) What is a semaphore? Explain its operations.
- c) What is a process? Explain its state transition diagram.
- d) Explain Time-Sharing operating systems.
- e) Describe critical section problem. State the solution to CS problem.

Q.3 Attempt any Two. 16

- a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

P No.	AT	BT
1	0	7
2	1	5
3	2	3
4	3	1
5	4	2
6	5	1

- i] Draw Gantt chart that illustrate execution of processes in Pre-emptive SJF manner.
 - ii] Calculate average waiting time for Pre-emptive SJF scheduling algorithm.
 - iii] Calculate average Turnaround time for Pre-emptive SJF scheduling algorithm.
- b) What is process Scheduler? Describe long term, short-term and medium-term scheduler in detail.
 - c) Explain Monitor in detail.

Section – II

- Q.4 Solve any three.** **12**
- a) Explain deadlock prevention in detail.
 - b) Explain FIFO page replacement policy with example.
 - c) Explain Swapping with the help of diagram.
 - d) Write note on deadlock characterization.
 - e) Write short note on application I/O interface.
- Q.5 Attempt any two.** **16**
- a) Write and explain Banker's algorithm for deadlock avoidance with the help of example.
 - b) Explain Paging in detail.
 - c) What is virtual memory? Explain demand paging in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Operating Systems (BTN05502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Solve Multiple Choice Questions.

14

- 1) What is the reusable resource?
 - a) that can be used by one process at a time and is not depleted by that use
 - b) that can be used by more than one process at a time
 - c) that can be shared between various threads
 - d) none of the mentioned
- 2) Which one of the following is the deadlock avoidance algorithm?
 - a) banker's algorithm
 - b) round-robin algorithm
 - c) elevator algorithm
 - d) kern's algorithm
- 3) CPU fetches the instruction from memory according to the value of _____.
 - a) program counter
 - b) status register
 - c) instruction register
 - d) program status word
- 4) Which one of the following is the address generated by CPU?
 - a) physical address
 - b) absolute address
 - c) logical address
 - d) none of the mentioned
- 5) _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
 - a) Paging
 - b) Demand paging
 - c) Segmentation
 - d) Swapping
- 6) In FIFO page replacement algorithm, when a page must be replaced?
 - a) oldest page is chosen
 - b) newest page is chosen
 - c) random page is chosen
 - d) none of the mentioned
- 7) A process is thrashing if _____.
 - a) it is spending more time paging than executing
 - b) it is spending less time paging than executing
 - c) page fault occurs
 - d) swapping cannot take place

- 8) The following C program :
- ```
main()
{
fork(); fork(); printf("yes");
}
```
- prints yes:
- a) only once
  - b) twice
  - c) four times
  - d) eight times
- 9) The state of a process is defined by :
- a) the final activity of the process
  - b) the activity just executed by the process
  - c) next activity to be executed by the process
  - d) the current activity of the process
- 10) Which of the following do not belong to queues for processes?
- a) Job Queue
  - b) PCB queue
  - c) Device Queue
  - d) Ready Queue
- 11) Mutual exclusion can be provided by the \_\_\_\_\_
- a) mutex locks
  - b) binary semaphores
  - c) both (a) and (b)
  - d) None of the above
- 12) Cascading termination refers to termination of all child processes before the parent terminates \_\_\_\_\_
- a) Normally
  - b) Abnormally
  - c) Normally or abnormally
  - d) None of these
- 13) The TestAndSet instruction is executed:
- a) after a particular process
  - b) periodically
  - c) atomically
  - d) None of these
- 14) Round robin scheduling falls under the category of:
- a) Non preemptive scheduling
  - b) Preemptive scheduling
  - c) None of these
  - d) Both (a) and (b)

|          |  |
|----------|--|
| Seat No. |  |
|----------|--|

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024**  
**INFORMATION TECHNOLOGY ENGINEERING**  
**Operating Systems (BTN05502)**

Day & Date: Tuesday, 14-05-2024  
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All Questions are compulsory.  
 2) Figures to the right indicate full marks.  
 3) Assume suitable data if necessary.

**Section – I**

**Q.2 Attempt any three. 12**

- a) Explain Priority Scheduling with example.
- b) What is a semaphore? Explain its operations.
- c) What is a process? Explain its state transition diagram.
- d) Explain Time-Sharing operating systems.
- e) Describe critical section problem. State the solution to CS problem.

**Q.3 Attempt any Two. 16**

- a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

| P No. | AT | BT |
|-------|----|----|
| 1     | 0  | 7  |
| 2     | 1  | 5  |
| 3     | 2  | 3  |
| 4     | 3  | 1  |
| 5     | 4  | 2  |
| 6     | 5  | 1  |

- i] Draw Gantt chart that illustrate execution of processes in Pre-emptive SJF manner.
  - ii] Calculate average waiting time for Pre-emptive SJF scheduling algorithm.
  - iii] Calculate average Turnaround time for Pre-emptive SJF scheduling algorithm.
- b) What is process Scheduler? Describe long term, short-term and medium-term scheduler in detail.
  - c) Explain Monitor in detail.

**Section – II**

- Q.4 Solve any three.** **12**
- a) Explain deadlock prevention in detail.
  - b) Explain FIFO page replacement policy with example.
  - c) Explain Swapping with the help of diagram.
  - d) Write note on deadlock characterization.
  - e) Write short note on application I/O interface.
- Q.5 Attempt any two.** **16**
- a) Write and explain Banker's algorithm for deadlock avoidance with the help of example.
  - b) Explain Paging in detail.
  - c) What is virtual memory? Explain demand paging in detail.



|             |  |
|-------------|--|
| Seat<br>No. |  |
|-------------|--|

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024**  
**INFORMATION TECHNOLOGY ENGINEERING**  
**Operating Systems (BTN05502)**

Day & Date: Tuesday, 14-05-2024  
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.  
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.  
 3) Figures to the right indicates full marks.

**MCQ/Objective Type Questions**

Duration: 30 Minutes

Marks: 14

**Q.1 Solve Multiple Choice Questions.**

**14**

- 1) Which one of the following is the address generated by CPU?
  - a) physical address
  - b) absolute address
  - c) logical address
  - d) none of the mentioned
- 2) \_\_\_\_\_ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
  - a) Paging
  - b) Demand paging
  - c) Segmentation
  - d) Swapping
- 3) In FIFO page replacement algorithm, when a page must be replaced?
  - a) oldest page is chosen
  - b) newest page is chosen
  - c) random page is chosen
  - d) none of the mentioned
- 4) A process is thrashing if \_\_\_\_\_.
  - a) it is spending more time paging than executing
  - b) it is spending less time paging than executing
  - c) page fault occurs
  - d) swapping cannot take place
- 5) The following C program :
 

```
main()
{
fork(); fork(); printf("yes");
}
```

 prints yes:
  - a) only once
  - b) twice
  - c) four times
  - d) eight times
- 6) The state of a process is defined by :
  - a) the final activity of the process
  - b) the activity just executed by the process
  - c) next activity to be executed by the process
  - d) the current activity of the process



|          |  |
|----------|--|
| Seat No. |  |
|----------|--|

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024**  
**INFORMATION TECHNOLOGY ENGINEERING**  
**Operating Systems (BTN05502)**

Day & Date: Tuesday, 14-05-2024  
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All Questions are compulsory.  
 2) Figures to the right indicate full marks.  
 3) Assume suitable data if necessary.

**Section – I**

**Q.2 Attempt any three. 12**

- a) Explain Priority Scheduling with example.
- b) What is a semaphore? Explain its operations.
- c) What is a process? Explain its state transition diagram.
- d) Explain Time-Sharing operating systems.
- e) Describe critical section problem. State the solution to CS problem.

**Q.3 Attempt any Two. 16**

- a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

| P No. | AT | BT |
|-------|----|----|
| 1     | 0  | 7  |
| 2     | 1  | 5  |
| 3     | 2  | 3  |
| 4     | 3  | 1  |
| 5     | 4  | 2  |
| 6     | 5  | 1  |

- i] Draw Gantt chart that illustrate execution of processes in Pre-emptive SJF manner.
  - ii] Calculate average waiting time for Pre-emptive SJF scheduling algorithm.
  - iii] Calculate average Turnaround time for Pre-emptive SJF scheduling algorithm.
- b) What is process Scheduler? Describe long term, short-term and medium-term scheduler in detail.
  - c) Explain Monitor in detail.

**Section – II**

- Q.4 Solve any three.** **12**
- a) Explain deadlock prevention in detail.
  - b) Explain FIFO page replacement policy with example.
  - c) Explain Swapping with the help of diagram.
  - d) Write note on deadlock characterization.
  - e) Write short note on application I/O interface.
- Q.5 Attempt any two.** **16**
- a) Write and explain Banker's algorithm for deadlock avoidance with the help of example.
  - b) Explain Paging in detail.
  - c) What is virtual memory? Explain demand paging in detail.

|             |  |
|-------------|--|
| Seat<br>No. |  |
|-------------|--|

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024**  
**INFORMATION TECHNOLOGY ENGINEERING**  
**Operating Systems (BTN05502)**

Day & Date: Tuesday, 14-05-2024  
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.  
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.  
 3) Figures to the right indicates full marks.

**MCQ/Objective Type Questions**

Duration: 30 Minutes

Marks: 14

**Q.1 Solve Multiple Choice Questions.**

**14**

- 1) The TestAndSet instruction is executed:
  - a) after a particular process
  - b) periodically
  - c) atomically
  - d) None of these
- 2) Round robin scheduling falls under the category of:
  - a) Non preemptive scheduling
  - b) Preemptive scheduling
  - c) None of these
  - d) Both (a) and (b)
- 3) What is the reusable resource?
  - a) that can be used by one process at a time and is not depleted by that use
  - b) that can be used by more than one process at a time
  - c) that can be shared between various threads
  - d) none of the mentioned
- 4) Which one of the following is the deadlock avoidance algorithm?
  - a) banker's algorithm
  - b) round-robin algorithm
  - c) elevator algorithm
  - d) kern's algorithm
- 5) CPU fetches the instruction from memory according to the value of \_\_\_\_\_.
  - a) program counter
  - b) status register
  - c) instruction register
  - d) program status word
- 6) Which one of the following is the address generated by CPU?
  - a) physical address
  - b) absolute address
  - c) logical address
  - d) none of the mentioned
- 7) \_\_\_\_\_ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
  - a) Paging
  - b) Demand paging
  - c) Segmentation
  - d) Swapping

- 8) In FIFO page replacement algorithm, when a page must be replaced?
- a) oldest page is chosen
  - b) newest page is chosen
  - c) random page is chosen
  - d) none of the mentioned
- 9) A process is thrashing if \_\_\_\_\_
- a) it is spending more time paging than executing
  - b) it is spending less time paging than executing
  - c) page fault occurs
  - d) swapping cannot take place
- 10) The following C program :
- ```
main()
{
fork(); fork(); printf("yes");
}
```
- prints yes:
- a) only once
 - b) twice
 - c) four times
 - d) eight times
- 11) The state of a process is defined by :
- a) the final activity of the process
 - b) the activity just executed by the process
 - c) next activity to be executed by the process
 - d) the current activity of the process
- 12) Which of the following do not belong to queues for processes?
- a) Job Queue
 - b) PCB queue
 - c) Device Queue
 - d) Ready Queue
- 13) Mutual exclusion can be provided by the _____
- a) mutex locks
 - b) binary semaphores
 - c) both (a) and (b)
 - d) None of the above
- 14) Cascading termination refers to termination of all child processes before the parent terminates _____
- a) Normally
 - b) Abnormally
 - c) Normally or abnormally
 - d) None of these

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Operating Systems (BTN05502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All Questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three. **12**

- a) Explain Priority Scheduling with example.
- b) What is a semaphore? Explain its operations.
- c) What is a process? Explain its state transition diagram.
- d) Explain Time-Sharing operating systems.
- e) Describe critical section problem. State the solution to CS problem.

Q.3 Attempt any Two. **16**

- a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

P No.	AT	BT
1	0	7
2	1	5
3	2	3
4	3	1
5	4	2
6	5	1

- i] Draw Gantt chart that illustrate execution of processes in Pre-emptive SJF manner.
 - ii] Calculate average waiting time for Pre-emptive SJF scheduling algorithm.
 - iii] Calculate average Turnaround time for Pre-emptive SJF scheduling algorithm.
- b) What is process Scheduler? Describe long term, short-term and medium-term scheduler in detail.
 - c) Explain Monitor in detail.

Section – II

- Q.4 Solve any three.** **12**
- a) Explain deadlock prevention in detail.
 - b) Explain FIFO page replacement policy with example.
 - c) Explain Swapping with the help of diagram.
 - d) Write note on deadlock characterization.
 - e) Write short note on application I/O interface.
- Q.5 Attempt any two.** **16**
- a) Write and explain Banker's algorithm for deadlock avoidance with the help of example.
 - b) Explain Paging in detail.
 - c) What is virtual memory? Explain demand paging in detail.

Seat No.	
-------------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 3) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.

a) The behavior of firms	b) The activities of individual units
c) Economic aggregates	d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?

a) owning the only licensed taxicab in town	b) the United States Postal Service
c) ownership of the only ferry across Puget Sound for twenty miles	d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA

- 8) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9) Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10) _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.

a) Increase	b) Decrease
c) No change	d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 6) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency

- 8)** Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9)** Macroeconomic theory deals with _____.
- a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 10)** Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

Set

Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 3) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 5) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly

- 8) Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9) Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

Set S

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Economics (BTN05506)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN05507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?
 - a) 35 years
 - b) 25 years
 - c) 20 years
 - d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 - a) Ethical value
 - b) Moral value
 - c) Social value
 - d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?
 - a) Inventor
 - b) Patent Attorney
 - c) Assignee
 - d) Patent Searcher
- 4) The following can be patented _____.
 - a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 5) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 6) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 7) Which is not a type of intellectual property?
 - a) Trade secrets
 - b) Trademarks
 - c) Home loans
 - d) Copyrights

- 8)** In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9)** The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN05507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN05507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN05507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

- 8)** In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9)** Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10)** In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN05507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN05507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?
 - a) Inventor
 - b) Patent Attorney
 - c) Assignee
 - d) Patent Searcher
- 2) The following can be patented _____.
 - a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?
 - a) Trade secrets
 - b) Trademarks
 - c) Home loans
 - d) Copyrights
- 6) In which article is intellectual property rights outlined?
 - a) Article 15
 - b) Article 27
 - c) Article 13
 - d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.
 - a) 1856
 - b) 1880
 - c) 1905
 - d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN05507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 2) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 3) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 4) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 5) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 6) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 7) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 8) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 9) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 2) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 3) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 4) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 5) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 6) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 7) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 8) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 9) What is the base of social structure?

a) polity	b) government
c) economy	d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 2) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 3) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 4) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 5) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 6) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 7) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 8) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 9) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Introduction to Sociology (BTN05508)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- | | | |
|------------|-------------------------------------------------------------|-----------|
| Q.2 | Explain the nature and basis of social stratification. | 10 |
| Q.3 | Explain the causes and nature of urbanization in India. | 10 |
| Q.4 | Give brief account of major social institution in India. | 10 |
| Q.5 | Explain the nature and types of social movements. | 10 |
| Q.6 | Elucidate the meaning and process of socialization. | 10 |
| Q.7 | Explain the meaning causes and directions of social change. | 10 |

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 3) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 6) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 7) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above

- 8)** Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9)** Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10)** Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

Set	P
------------	----------

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 7) Aches, shallow breathing and sweating, frequent colds are _____.
a) Physical symptoms of stress
b) Behavioral symptoms of stress
c) Emotional symptoms of stress
d) Cognitive symptoms of stress
- 8) Anxiety can cause the following moods _____.
a) Irritable
b) Nervous
c) Anxious
d) All of the above
- 9) Which of the following are the physical symptoms of anxiety?
a) Racing heart
b) Sweaty palms
c) Flushed cheeks
d) All of the above
- 10) Which of the following is true about 'deep breathing relaxation technique'?
a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.

a) Irritable	b) Nervous
c) Anxious	d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?

a) Racing heart	b) Sweaty palms
c) Flushed cheeks	d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

Set

S

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Stress and Coping (BTN05509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 2) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money
- 3) Value and skills should go hand in hand _____.
 - a) True
 - b) False
 - c) Cannot tell
 - d) Wrong question
- 4) _____ are the basic Human aspirations.
 - a) Money
 - b) Relationship without money
 - c) Physical facility
 - d) Continuous happiness
- 5) Many complex social problems exist in the _____.
 - a) Industry/ Business
 - b) Society
 - c) Home
 - d) None of the above
- 6) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 7) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 8) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) Commitment means _____.
 a) Alignment to goals b) Adherence to ethical principles
 c) Empathy d) All the above
- 2) The objectives of professional ethics in engineering are _____.
 a) To understand the moral values that ought to guide the Engineering profession
 b) To resolve the moral issues in the profession, and
 c) To justify the moral judgment concerning the profession
 d) All the above
- 3) Virtues are _____.
 a) moral b) ethics
 c) values d) positive and preferred values
- 4) One of the basic desires of every human being is to be always _____.
 a) Happy b) Sad
 c) Laugh d) Earn Money
- 5) Value and skills should go hand in hand _____.
 a) True b) False
 c) Cannot tell d) Wrong question
- 6) _____ are the basic Human aspirations.
 a) Money b) Relationship without money
 c) Physical facility d) Continuous happiness
- 7) Many complex social problems exist in the _____.
 a) Industry/ Business b) Society
 c) Home d) None of the above
- 8) What is Integrity?
 a) Unity of thought b) Word and deed
 c) Open mindedness d) All of these

- 9) Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10) Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

Set R

**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)**

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 Write short notes on any four. **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

- 8)** The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9)** Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10)** One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Professional Ethics & Human Value (BTN05510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 What is Ethics and explain three types of ethics or morality? **10**

OR

What are the objectives of Engineering Ethics? Explain in detail.

Q.3 Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**

OR

List and explain the skills required to handle moral problems in Engineering Ethics.

Q.4 **Write short notes on any four.** **20**

- a) Respect for others
- b) Intellectual Property Rights
- c) Spirituality
- d) Kohlberg's Theory
- e) Character
- f) Cooperation

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is Artificial intelligence?
 - a) Putting your intelligence into Computer
 - b) Programming with your own intelligence
 - c) Making a Machine intelligent
 - d) Putting more memory into Computer
- 2) Which is not the commonly used programming language for AI?
 - a) RPOLOG
 - b) Java
 - c) LISP
 - d) Perl
 - e) Java script
- 3) What is state space?
 - a) The whole problem
 - b) Your Definition to a problem
 - c) Problem you design
 - d) Representing your problem with variable and parameter
 - e) A space where You know the solution.
- 4) A production rule consists of _____
 - a) A set of Rule
 - b) A sequence of steps
 - c) Both (a) and (b)
 - d) Arbitrary representation to problem
 - e) Directly getting solution
- 5) Which search method takes less memory?
 - a) Depth-first search
 - b) Breadth-first search
 - c) Both (a) and (b)
 - d) Linear search
 - e) Optimal search

- 6) A heuristic is a way of trying _____.
 a) To discover something or an idea embedded in a program
 b) To search and measure how far a node in a search tree seems to be from a goal
 c) To compare two nodes in a search tree to see if one is better than the other
 d) Only (a) and (b)
 e) Only (a), (b) and (c)
- 7) A* algorithm is based on _____.
 a) Breadth-First-Search
 b) Depth-First-Search
 c) Best-First-Search
 d) Hill climbing
 e) Bulkworld Problem
- 8) Which is the best way to go for Game playing problem?
 a) Linear approach
 b) Heuristic approach
 c) Random approach
 d) Optimal approach
 e) Stratified approach
- 9) How do you represent "All dogs have tails"?
 a) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 b) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
 c) $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 d) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 e) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 10) Which is not a property of representation of knowledge?
 a) Representational Verification
 b) Representational Adequacy
 c) Inferential Adequacy
 d) Inferential Efficiency
 e) Acquisitional Efficiency
- 11) What are you predicating by the logic: $\forall x: \exists y: \text{loyalto}(x, y)$?
 a) Everyone is loyal to some one
 b) Everyone is loyal to all
 c) Everyone is not loyal to someone
 d) Everyone is loyal
 e) Everyone is not loyal
- 12) Which is not Familiar Connectives in First Order Logic?
 a) and
 b) iff
 c) or
 d) not
 e) either a or
- 13) Which is not a type of First Order Logic (FOL) Sentence?
 a) Atomic sentences
 b) Complex sentences
 c) Quantified sentence
 d) Quality Sentence
 e) Simple sentence
- 14) Which is not a Goal-based agent?
 a) Inference
 b) Search
 c) Planning
 d) Conclusion
 e) Dynamic search

Seat No.	
-----------------	--

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) What is Heuristic search? List the algorithms that use Heuristics.
 - b) A* may go into over and under estimations - Justify.
 - c) List the different Knowledge representation approaches.
 - d) Illustrate 'DFID' with an appropriate example.
 - e) What are AI systems? List their characteristics.
- Q.3 Attempt any two.** **08**
- a) Write and illustrate with an example the 'Hill Climbing' algorithm.
 - b) Compare and contrast between A* and AO* algorithms.
 - c) Compare between beam search and Taboo search algorithms.
- Q.4 Attempt any one.** **08**
- a) Illustrate the basic steps involved in designing an automatic "Teeth Brushing System" using an artificial intelligent approach.
 - b) What is beam stack search? How is it attained?

Section – II

- Q.5 Attempt any four. 12**
- a) Give the semantic network for 'Ragging is prohibited'.
 - b) Compare between monotonic and non-monotonic reasoning.
 - c) Where are measures of belief and disbelief used? Illustrate.
 - d) What are expert systems?
 - e) What are scripts? Write a brief script for an encounter.
- Q.6 Attempt any two 08**
- a) What is constraint satisfaction? State the steps involved.
 - b) Use the following statements
 - i) The custom officials searched everyone who entered the country who was not a VIP.
 - ii) Some of the drug pushers entered the country and they were only searched by drug pushers.
 - iii) No drug pusher was a VIP.Conclude using an appropriate AI method that - some of the officials were drug pushers
 - c) Illustrate the working of alpha and beta cuts in game tree.
- Q.7 Attempt any one. 08**
- a) State Baye's Theorem. How is it related to certainty factors?
 - b) Compare between procedure and declarative Knowledge.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which is the best way to go for Game playing problem?
 - a) Linear approach
 - b) Heuristic approach
 - c) Random approach
 - d) Optimal approach
 - e) Stratified approach
- 2) How do you represent "All dogs have tails"?
 - a) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - b) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
 - c) $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 - d) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - e) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 3) Which is not a property of representation of knowledge?
 - a) Representational Verification
 - b) Representational Adequacy
 - c) Inferential Adequacy
 - d) Inferential Efficiency
 - e) Acquisitional Efficiency
- 4) What are you predicating by the logic: $\forall x: \exists y: \text{loyalto}(x, y)$?
 - a) Everyone is loyal to some one
 - b) Everyone is loyal to all
 - c) Everyone is not loyal to someone
 - d) Everyone is loyal
 - e) Everyone is not loyal
- 5) Which is not Familiar Connectives in First Order Logic?
 - a) and
 - b) iff
 - c) or
 - d) not
 - e) either a or
- 6) Which is not a type of First Order Logic (FOL) Sentence?
 - a) Atomic sentences
 - b) Complex sentences
 - c) Quantified sentence
 - d) Quality Sentence
 - e) Simple sentence

Seat No.	
-----------------	--

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) What is Heuristic search? List the algorithms that use Heuristics.
 - b) A* may go into over and under estimations - Justify.
 - c) List the different Knowledge representation approaches.
 - d) Illustrate 'DFID' with an appropriate example.
 - e) What are AI systems? List their characteristics.
- Q.3 Attempt any two.** **08**
- a) Write and illustrate with an example the 'Hill Climbing' algorithm.
 - b) Compare and contrast between A* and AO* algorithms.
 - c) Compare between beam search and Taboo search algorithms.
- Q.4 Attempt any one.** **08**
- a) Illustrate the basic steps involved in designing an automatic "Teeth Brushing System" using an artificial intelligent approach.
 - b) What is beam stack search? How is it attained?

Section – II

- Q.5 Attempt any four.** **12**
- a) Give the semantic network for 'Ragging is prohibited'.
 - b) Compare between monotonic and non-monotonic reasoning.
 - c) Where are measures of belief and disbelief used? Illustrate.
 - d) What are expert systems?
 - e) What are scripts? Write a brief script for an encounter.
- Q.6 Attempt any two** **08**
- a) What is constraint satisfaction? State the steps involved.
 - b) Use the following statements
 - i) The custom officials searched everyone who entered the country who was not a VIP.
 - ii) Some of the drug pushers entered the country and they were only searched by drug pushers.
 - iii) No drug pusher was a VIP.Conclude using an appropriate AI method that - some of the officials were drug pushers
 - c) Illustrate the working of alpha and beta cuts in game tree.
- Q.7 Attempt any one.** **08**
- a) State Baye's Theorem. How is it related to certainty factors?
 - b) Compare between procedure and declarative Knowledge.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What are you predicating by the logic: $\forall x : \exists y: \text{loyalto}(x, y)$?
 - a) Everyone is loyal to some one
 - b) Everyone is loyal to all
 - c) Everyone is not loyal to someone
 - d) Everyone is loyal
 - e) Everyone is not loyal
- 2) Which is not Familiar Connectives in First Order Logic?

a) and	b) iff
c) or	d) not
e) either a or	
- 3) Which is not a type of First Order Logic (FOL) Sentence?

a) Atomic sentences	b) Complex sentences
c) Quantified sentence	d) Quality Sentence
e) Simple sentence	
- 4) Which is not a Goal-based agent?

a) Inference	b) Search
c) Planning	d) Conclusion
e) Dynamic search	
- 5) What is Artificial intelligence?
 - a) Putting your intelligence into Computer
 - b) Programming with your own intelligence
 - c) Making a Machine intelligent
 - d) Putting more memory into Computer
- 6) Which is not the commonly used programming language for AI?

a) RPOLOG	b) Java
c) LISP	d) Perl
e) Java script	

- 7) What is state space?
- The whole problem
 - Your Definition to a problem
 - Problem you design
 - Representing your problem with variable and parameter
 - A space where You know the solution.
- 8) A production rule consists of _____
- A set of Rule
 - A sequence of steps
 - Both (a) and (b)
 - Arbitrary representation to problem
 - Directly getting solution
- 9) Which search method takes less memory?
- Depth-first search
 - Breadth-first search
 - Both (a) and (b)
 - Linear search
 - Optimal search
- 10) A heuristic is a way of trying _____.
- To discover something or an idea embedded in a program
 - To search and measure how far a node in a search tree seems to be from a goal
 - To compare two nodes in a search tree to see if one is better than the other
 - Only (a) and (b)
 - Only (a), (b) and (c)
- 11) A* algorithm is based on _____
- Breadth-First-Search
 - Depth-First-Search
 - Best-First-Search
 - Hill climbing
 - Bulkworld Problem
- 12) Which is the best way to go for Game playing problem?
- Linear approach
 - Heuristic approach
 - Random approach
 - Optimal approach
 - Stratified approach
- 13) How do you represent "All dogs have tails"?
- $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
 - $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 - $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
- 14) Which is not a property of representation of knowledge?
- Representational Verification
 - Representational Adequacy
 - Inferential Adequacy
 - Inferential Efficiency
 - Acquisitional Efficiency

Seat No.	
-----------------	--

Set R

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) What is Heuristic search? List the algorithms that use Heuristics.
 - b) A* may go into over and under estimations - Justify.
 - c) List the different Knowledge representation approaches.
 - d) Illustrate 'DFID' with an appropriate example.
 - e) What are AI systems? List their characteristics.
- Q.3 Attempt any two.** **08**
- a) Write and illustrate with an example the 'Hill Climbing' algorithm.
 - b) Compare and contrast between A* and AO* algorithms.
 - c) Compare between beam search and Taboo search algorithms.
- Q.4 Attempt any one.** **08**
- a) Illustrate the basic steps involved in designing an automatic "Teeth Brushing System" using an artificial intelligent approach.
 - b) What is beam stack search? How is it attained?

Section – II

- Q.5 Attempt any four. 12**
- a) Give the semantic network for 'Ragging is prohibited'.
 - b) Compare between monotonic and non-monotonic reasoning.
 - c) Where are measures of belief and disbelief used? Illustrate.
 - d) What are expert systems?
 - e) What are scripts? Write a brief script for an encounter.
- Q.6 Attempt any two 08**
- a) What is constraint satisfaction? State the steps involved.
 - b) Use the following statements
 - i) The custom officials searched everyone who entered the country who was not a VIP.
 - ii) Some of the drug pushers entered the country and they were only searched by drug pushers.
 - iii) No drug pusher was a VIP.Conclude using an appropriate AI method that - some of the officials were drug pushers
 - c) Illustrate the working of alpha and beta cuts in game tree.
- Q.7 Attempt any one. 08**
- a) State Baye's Theorem. How is it related to certainty factors?
 - b) Compare between procedure and declarative Knowledge.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A heuristic is a way of trying _____.
 - a) To discover something or an idea embedded in a program
 - b) To search and measure how far a node in a search tree seems to be from a goal
 - c) To compare two nodes in a search tree to see if one is better than the other
 - d) Only (a) and (b)
 - e) Only (a), (b) and (c)
- 2) A* algorithm is based on _____.

a) Breadth-First-Search	b) Depth-First-Search
c) Best-First-Search	d) Hill climbing
e) Bulkworld Problem	
- 3) Which is the best way to go for Game playing problem?

a) Linear approach	b) Heuristic approach
c) Random approach	d) Optimal approach
e) Stratified approach	
- 4) How do you represent "All dogs have tails"?

a) $\forall x: \text{dog}(x) \rightarrow \text{has tail}(x)$	b) $\forall x: \text{dog}(x) \rightarrow \text{has tail}(y)$
c) $\forall x: \text{dog}(y) \rightarrow \text{has tail}(x)$	d) $\forall x: \text{dog}(x) \rightarrow \text{has tail}(x)$
e) $\forall x: \text{dog}(x) \rightarrow \text{has tail}(y)$	
- 5) Which is not a property of representation of knowledge?
 - a) Representational Verification
 - b) Representational Adequacy
 - c) Inferential Adequacy
 - d) Inferential Efficiency
 - e) Acquisitional Efficiency

- 6) What are you predicating by the logic: $\forall x : \exists y: \text{loyalto}(x, y)$?
- Everyone is loyal to some one
 - Everyone is loyal to all
 - Everyone is not loyal to someone
 - Everyone is loyal
 - Everyone is not loyal
- 7) Which is not Familiar Connectives in First Order Logic?
- and
 - iff
 - or
 - not
 - either a or
- 8) Which is not a type of First Order Logic (FOL) Sentence?
- Atomic sentences
 - Complex sentences
 - Quantified sentence
 - Quality Sentence
 - Simple sentence
- 9) Which is not a Goal-based agent?
- Inference
 - Search
 - Planning
 - Conclusion
 - Dynamic search
- 10) What is Artificial intelligence?
- Putting your intelligence into Computer
 - Programming with your own intelligence
 - Making a Machine intelligent
 - Putting more memory into Computer
- 11) Which is not the commonly used programming language for AI?
- RPOLOG
 - Java
 - LISP
 - Perl
 - Java script
- 12) What is state space?
- The whole problem
 - Your Definition to a problem
 - Problem you design
 - Representing your problem with variable and parameter
 - A space where You know the solution.
- 13) A production rule consists of _____
- A set of Rule
 - A sequence of steps
 - Both (a) and (b)
 - Arbitrary representation to problem
 - Directly getting solution
- 14) Which search method takes less memory?
- Depth-first search
 - Breadth-first search
 - Both (a) and (b)
 - Linear search
 - Optimal search

Seat No.	
-----------------	--

Set S

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Artificial Intelligence (BTN05601)

Day & Date: Tuesday, 21-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three** **12**
- a) What is Heuristic search? List the algorithms that use Heuristics.
 - b) A* may go into over and under estimations - Justify.
 - c) List the different Knowledge representation approaches.
 - d) Illustrate 'DFID' with an appropriate example.
 - e) What are AI systems? List their characteristics.
- Q.3 Attempt any two.** **08**
- a) Write and illustrate with an example the 'Hill Climbing' algorithm.
 - b) Compare and contrast between A* and AO* algorithms.
 - c) Compare between beam search and Taboo search algorithms.
- Q.4 Attempt any one.** **08**
- a) Illustrate the basic steps involved in designing an automatic "Teeth Brushing System" using an artificial intelligent approach.
 - b) What is beam stack search? How is it attained?

Section – II

- Q.5 Attempt any four.** **12**
- a) Give the semantic network for 'Ragging is prohibited'.
 - b) Compare between monotonic and non-monotonic reasoning.
 - c) Where are measures of belief and disbelief used? Illustrate.
 - d) What are expert systems?
 - e) What are scripts? Write a brief script for an encounter.
- Q.6 Attempt any two** **08**
- a) What is constraint satisfaction? State the steps involved.
 - b) Use the following statements
 - i) The custom officials searched everyone who entered the country who was not a VIP.
 - ii) Some of the drug pushers entered the country and they were only searched by drug pushers.
 - iii) No drug pusher was a VIP.Conclude using an appropriate AI method that - some of the officials were drug pushers
 - c) Illustrate the working of alpha and beta cuts in game tree.
- Q.7 Attempt any one.** **08**
- a) State Baye's Theorem. How is it related to certainty factors?
 - b) Compare between procedure and declarative Knowledge.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What is the first step in the software development lifecycle?
 - a) System Design
 - b) Coding
 - c) System Testing
 - d) Preliminary Investigation and Analysis
- 2) Which of the following represents the life-cycle of software development?
 - a) Analysis -> Design -> Coding -> testing -> operations and maintenance
 - b) Analysis -> Design -> Coding -> operations and maintenance -> testing
 - c) Design -> Analysis -> Coding -> testing -> operations and maintenance
 - d) Design -> Analysis -> Coding -> operations and maintenance -> testing
- 3) Which parameters are essentially used while computing the software development cost?

a) Hardware and Software Costs	b) Effort Costs
c) Travel and Training Costs	d) All of the above
- 4) Which of the following is/are level/s of Testing?

a) Integration testing	b) Unit testing
c) System testing	d) All of the above
- 5) _____ begins after successful testing of the developed system.

a) System Design	b) Requirement Analysis
c) Deployment	d) None of the mentioned above
- 6) Testing beyond normal operational capacity is _____.

a) Load testing	b) Performance testing
c) Stress testing	d) All of these
- 7) Which technique is applied for usability testing?

a) White box	b) Black box
c) Grey box	d) Combination of all

- 8) Full Form of the COCOMO model is _____.
a) Common Cost Estimation Model.
b) Constructive Cost Estimation Model.
c) Complete Cost Estimation Model.
d) Comprehensive Cost Estimation Model
- 9) Agile Software Development is based on _____.
a) incremental development
b) iterative development
c) linear development
d) both incremental and iterative development
- 10) The working culture of an Agile team is _____?
a) Collective
b) Connective
c) Contemplative
d) Collaborative
- 11) Errors, Defects, Failures are synonymous.
a) True
b) False
- 12) Software quality is measured by functional as well as non functional attributes.
a) True
b) False
- 13) With reference to the waterfall model, each phase must be completed before the _____ can begin and there is no overlapping in the phases.
a) Previous phase
b) Next phase
c) Both A and B
d) None of the mentioned above
- 14) In Scrum, when is a Sprint Over?
a) When all the Sprint Backlog Items are completed
b) When the Product Owner suggests
c) When all the Sprint Backlog tasks are completed
d) When the time box expires

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Three. 12**
- a) Describe Iterative Development Process Model.
 - b) Write a short note on Component and Connector (C&C) architecture view.
 - c) Explain the Role of Software Architecture.
 - d) Describe the desired characteristics of the software process.
- Q.3 Attempt any Two. 16**
- a) Describe the Software Development process in detail.
 - b) Construct a DFD for workers payment system. Prepare the data dictionary of the system.
 - c) Describe the general structure of SRS.

Section – II

- Q.4 Attempt any Three. 12**
- a) Explain White-Box testing.
 - b) Write a short note on Configuration Management.
 - c) What do you mean by effort estimation? What are the methods of effort estimation?
 - d) Write a short note on Risk Management.
- Q.5 Attempt any Two. 16**
- a) Write a short note on Unit testing, Integration testing, System testing and Acceptance testing.
 - b) What is Agile Project Management? Explain its principles.
 - c) Explain Testing Process in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Full Form of the COCOMO model is _____.
 - a) Common Cost Estimation Model.
 - b) Constructive Cost Estimation Model.
 - c) Complete Cost Estimation Model.
 - d) Comprehensive Cost Estimation Model
- 2) Agile Software Development is based on _____.
 - a) incremental development
 - b) iterative development
 - c) linear development
 - d) both incremental and iterative development
- 3) The working culture of an Agile team is _____?
 - a) Collective
 - b) Connective
 - c) Contemplative
 - d) Collaborative
- 4) Errors, Defects, Failures are synonymous.
 - a) True
 - b) False
- 5) Software quality is measured by functional as well as non functional attributes.
 - a) True
 - b) False
- 6) With reference to the waterfall model, each phase must be completed before the _____ can begin and there is no overlapping in the phases.
 - a) Previous phase
 - b) Next phase
 - c) Both A and B
 - d) None of the mentioned above
- 7) In Scrum, when is a Sprint Over?
 - a) When all the Sprint Backlog Items are completed
 - b) When the Product Owner suggests
 - c) When all the Sprint Backlog tasks are completed
 - d) When the time box expires

- 8) What is the first step in the software development lifecycle?
a) System Design
b) Coding
c) System Testing
d) Preliminary Investigation and Analysis
- 9) Which of the following represents the life-cycle of software development?
a) Analysis -> Design -> Coding -> testing -> operations and maintenance
b) Analysis -> Design -> Coding -> operations and maintenance -> testing
c) Design -> Analysis -> Coding -> testing -> operations and maintenance
d) Design -> Analysis -> Coding -> operations and maintenance -> testing
- 10) Which parameters are essentially used while computing the software development cost?
a) Hardware and Software Costs b) Effort Costs
c) Travel and Training Costs d) All of the above
- 11) Which of the following is/are level/s of Testing?
a) Integration testing b) Unit testing
c) System testing d) All of the above
- 12) _____ begins after successful testing of the developed system.
a) System Design b) Requirement Analysis
c) Deployment d) None of the mentioned above
- 13) Testing beyond normal operational capacity is _____.
a) Load testing b) Performance testing
c) Stress testing d) All of these
- 14) Which technique is applied for usability testing?
a) White box b) Black box
c) Grey box d) Combination of all

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Three. 12**
- a) Describe Iterative Development Process Model.
 - b) Write a short note on Component and Connector (C&C) architecture view.
 - c) Explain the Role of Software Architecture.
 - d) Describe the desired characteristics of the software process.
- Q.3 Attempt any Two. 16**
- a) Describe the Software Development process in detail.
 - b) Construct a DFD for workers payment system. Prepare the data dictionary of the system.
 - c) Describe the general structure of SRS.

Section – II

- Q.4 Attempt any Three. 12**
- a) Explain White-Box testing.
 - b) Write a short note on Configuration Management.
 - c) What do you mean by effort estimation? What are the methods of effort estimation?
 - d) Write a short note on Risk Management.
- Q.5 Attempt any Two. 16**
- a) Write a short note on Unit testing, Integration testing, System testing and Acceptance testing.
 - b) What is Agile Project Management? Explain its principles.
 - c) Explain Testing Process in detail.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Errors, Defects, Failures are synonymous.
 - a) True
 - b) False
- 2) Software quality is measured by functional as well as non functional attributes.
 - a) True
 - b) False
- 3) With reference to the waterfall model, each phase must be completed before the _____ can begin and there is no overlapping in the phases.
 - a) Previous phase
 - b) Next phase
 - c) Both A and B
 - d) None of the mentioned above
- 4) In Scrum, when is a Sprint Over?
 - a) When all the Sprint Backlog Items are completed
 - b) When the Product Owner suggests
 - c) When all the Sprint Backlog tasks are completed
 - d) When the time box expires
- 5) What is the first step in the software development lifecycle?
 - a) System Design
 - b) Coding
 - c) System Testing
 - d) Preliminary Investigation and Analysis
- 6) Which of the following represents the life-cycle of software development?
 - a) Analysis -> Design -> Coding -> testing -> operations and maintenance
 - b) Analysis -> Design -> Coding -> operations and maintenance -> testing
 - c) Design -> Analysis -> Coding -> testing -> operations and maintenance
 - d) Design -> Analysis -> Coding -> operations and maintenance -> testing
- 7) Which parameters are essentially used while computing the software development cost?
 - a) Hardware and Software Costs
 - b) Effort Costs
 - c) Travel and Training Costs
 - d) All of the above
- 8) Which of the following is/are level/s of Testing?
 - a) Integration testing
 - b) Unit testing
 - c) System testing
 - d) All of the above

- 9) _____ begins after successful testing of the developed system.
- a) System Design
 - b) Requirement Analysis
 - c) Deployment
 - d) None of the mentioned above
- 10) Testing beyond normal operational capacity is _____.
- a) Load testing
 - b) Performance testing
 - c) Stress testing
 - d) All of these
- 11) Which technique is applied for usability testing?
- a) White box
 - b) Black box
 - c) Grey box
 - d) Combination of all
- 12) Full Form of the COCOMO model is _____.
- a) Common Cost Estimation Model.
 - b) Constructive Cost Estimation Model.
 - c) Complete Cost Estimation Model.
 - d) Comprehensive Cost Estimation Model
- 13) Agile Software Development is based on _____.
- a) incremental development
 - b) iterative development
 - c) linear development
 - d) both incremental and iterative development
- 14) The working culture of an Agile team is _____?
- a) Collective
 - b) Connective
 - c) Contemplative
 - d) Collaborative

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Three. 12**
- a) Describe Iterative Development Process Model.
 - b) Write a short note on Component and Connector (C&C) architecture view.
 - c) Explain the Role of Software Architecture.
 - d) Describe the desired characteristics of the software process.
- Q.3 Attempt any Two. 16**
- a) Describe the Software Development process in detail.
 - b) Construct a DFD for workers payment system. Prepare the data dictionary of the system.
 - c) Describe the general structure of SRS.

Section – II

- Q.4 Attempt any Three. 12**
- a) Explain White-Box testing.
 - b) Write a short note on Configuration Management.
 - c) What do you mean by effort estimation? What are the methods of effort estimation?
 - d) Write a short note on Risk Management.
- Q.5 Attempt any Two. 16**
- a) Write a short note on Unit testing, Integration testing, System testing and Acceptance testing.
 - b) What is Agile Project Management? Explain its principles.
 - c) Explain Testing Process in detail.

- 9) In Scrum, when is a Sprint Over?
- a) When all the Sprint Backlog Items are completed
 - b) When the Product Owner suggests
 - c) When all the Sprint Backlog tasks are completed
 - d) When the time box expires
- 10) What is the first step in the software development lifecycle?
- a) System Design
 - b) Coding
 - c) System Testing
 - d) Preliminary Investigation and Analysis
- 11) Which of the following represents the life-cycle of software development?
- a) Analysis -> Design -> Coding -> testing -> operations and maintenance
 - b) Analysis -> Design -> Coding -> operations and maintenance -> testing
 - c) Design -> Analysis -> Coding -> testing -> operations and maintenance
 - d) Design -> Analysis -> Coding -> operations and maintenance -> testing
- 12) Which parameters are essentially used while computing the software development cost?
- a) Hardware and Software Costs
 - b) Effort Costs
 - c) Travel and Training Costs
 - d) All of the above
- 13) Which of the following is/are level/s of Testing?
- a) Integration testing
 - b) Unit testing
 - c) System testing
 - d) All of the above
- 14) _____ begins after successful testing of the developed system.
- a) System Design
 - b) Requirement Analysis
 - c) Deployment
 - d) None of the mentioned above

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Engineering (BTN05603)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any Three. 12**
- a) Describe Iterative Development Process Model.
 - b) Write a short note on Component and Connector (C&C) architecture view.
 - c) Explain the Role of Software Architecture.
 - d) Describe the desired characteristics of the software process.
- Q.3 Attempt any Two. 16**
- a) Describe the Software Development process in detail.
 - b) Construct a DFD for workers payment system. Prepare the data dictionary of the system.
 - c) Describe the general structure of SRS.

Section – II

- Q.4 Attempt any Three. 12**
- a) Explain White-Box testing.
 - b) Write a short note on Configuration Management.
 - c) What do you mean by effort estimation? What are the methods of effort estimation?
 - d) Write a short note on Risk Management.
- Q.5 Attempt any Two. 16**
- a) Write a short note on Unit testing, Integration testing, System testing and Acceptance testing.
 - b) What is Agile Project Management? Explain its principles.
 - c) Explain Testing Process in detail.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility,
Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) _____ is the study of moral principles that governs a person's behaviour or conducting an activity.

a) Ethics	b) Kinesics
c) Proxemics	d) None
- 2) _____ can help engineers make correct decisions and become better professionals.

a) Study of English	b) Study of Math
c) Study of ethics	d) None
- 3) In how many types responsibilities can be distinguished?

a) 4	b) 2
c) 3	d) 1
- 4) How an engineer views her/his responsibilities, depends on the _____ basic attitudes towards responsibilities.

a) 3	b) 2
c) 1	d) 0
- 5) _____ view holds that engineers are responsible to conform to the standard procedures of their profession and fulfil the basic duties defined by the terms of their employment.

a) Beyond one's duty	b) Reasonable care
c) Minimalist	d) None
- 6) _____ refers to the principles of right and wrong behaviour.

a) Moral	b) Oral
c) Coral	d) None
- 7) In the _____ approach, the action provides the most good over least harm.

a) Utilitarian	b) Right
c) Fairness	d) Virtue

- 8) The list of moral rights include _____.
- a) To make one's own choices about what kind of life to lead
 - b) To be told the truth
 - c) Not to be injured
 - d) Above all
- 9) The _____ approach is based on the belief that all equal should be treated equally.
- a) Virtue
 - b) Fairness
 - c) Right
 - d) None
- 10) Which approach is a very ancient approach?
- a) Virtue
 - b) Right
 - c) Fairness
 - d) Utilitarian

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility,
Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any two** **10**
- a) What is Engineering Ethics? Why is it required to be studied by blooming engineers?
 - b) What are self directed virtues? How are they obtained?
 - c) Compare between Ethics and Morality.
- Q.3 Attempt any one** **10**
- a) Illustrate the various types of virtues with examples.
 - b) How moral autonomy is supported by theories?

Section – II

- Q.4 Attempt any two** **10**
- a) What is a resource? How can it be innovated and conserved?
 - b) How is switching out to renewable resources advantageous? Illustrate.
 - c) What is resource technology symbiosis related to? Illustrate
- Q.5 Attempt any one** **10**
- a) Give the basics of economic sustainability. Illustrate each
 - b) How is resource conservation carried out?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility,
Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) _____ refers to the principles of right and wrong behaviour.

a) Moral	b) Oral
c) Coral	d) None
- 2) In the _____ approach, the action provides the most good over least harm.

a) Utilitarian	b) Right
c) Fairness	d) Virtue
- 3) The list of moral rights include _____.

a) To make one's own choices about what kind of life to lead
b) To be told the truth
c) Not to be injured
d) Above all
- 4) The _____ approach is based on the belief that all equal should be treated equally.

a) Virtue	b) Fairness
c) Right	d) None
- 5) Which approach is a very ancient approach?

a) Virtue	b) Right
c) Fairness	d) Utilitarian
- 6) _____ is the study of moral principles that governs a person's behaviour or conducting an activity.

a) Ethics	b) Kinesics
c) Proxemics	d) None
- 7) _____ can help engineers make correct decisions and become better professionals.

a) Study of English	b) Study of Math
c) Study of ethics	d) None
- 8) In how many types responsibilities can be distinguished?

a) 4	b) 2
c) 3	d) 1

- 9) How an engineer views her/his responsibilities, depends on the _____ basic attitudes towards responsibilities.
- | | |
|------|------|
| a) 3 | b) 2 |
| c) 1 | d) 0 |
- 10) _____ view holds that engineers are responsible to conform to the standard procedures of their profession and fulfil the basic duties defined by the terms of their employment.
- | | |
|----------------------|--------------------|
| a) Beyond one's duty | b) Reasonable care |
| c) Minimalist | d) None |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility,
Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any two** **10**
- a) What is Engineering Ethics? Why is it required to be studied by blooming engineers?
 - b) What are self directed virtues? How are they obtained?
 - c) Compare between Ethics and Morality.
- Q.3 Attempt any one** **10**
- a) Illustrate the various types of virtues with examples.
 - b) How moral autonomy is supported by theories?

Section – II

- Q.4 Attempt any two** **10**
- a) What is a resource? How can it be innovated and conserved?
 - b) How is switching out to renewable resources advantageous? Illustrate.
 - c) What is resource technology symbiosis related to? Illustrate
- Q.5 Attempt any one** **10**
- a) Give the basics of economic sustainability. Illustrate each
 - b) How is resource conservation carried out?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) The _____ approach is based on the belief that all equal should be treated equally.

a) Virtue	b) Fairness
c) Right	d) None
- 2) Which approach is a very ancient approach?

a) Virtue	b) Right
c) Fairness	d) Utilitarian
- 3) _____ is the study of moral principles that governs a person's behaviour or conducting an activity.

a) Ethics	b) Kinesics
c) Proxemics	d) None
- 4) _____ can help engineers make correct decisions and become better professionals.

a) Study of English	b) Study of Math
c) Study of ethics	d) None
- 5) In how many types responsibilities can be distinguished?

a) 4	b) 2
c) 3	d) 1
- 6) How an engineer views her/his responsibilities, depends on the _____ basic attitudes towards responsibilities.

a) 3	b) 2
c) 1	d) 0
- 7) _____ view holds that engineers are responsible to conform to the standard procedures of their profession and fulfil the basic duties defined by the terms of their employment.

a) Beyond one's duty	b) Reasonable care
c) Minimalist	d) None

- 8) _____ refers to the principles of right and wrong behaviour.
- | | |
|----------|---------|
| a) Moral | b) Oral |
| c) Coral | d) None |
- 9) In the _____ approach, the action provides the most good over least harm.
- | | |
|----------------|-----------|
| a) Utilitarian | b) Right |
| c) Fairness | d) Virtue |
- 10) The list of moral rights include _____.
- | |
|--------------------------------------------------------------|
| a) To make one's own choices about what kind of life to lead |
| b) To be told the truth |
| c) Not to be injured |
| d) Above all |

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility,
Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any two** **10**
- a) What is Engineering Ethics? Why is it required to be studied by blooming engineers?
 - b) What are self directed virtues? How are they obtained?
 - c) Compare between Ethics and Morality.
- Q.3 Attempt any one** **10**
- a) Illustrate the various types of virtues with examples.
 - b) How moral autonomy is supported by theories?

Section – II

- Q.4 Attempt any two** **10**
- a) What is a resource? How can it be innovated and conserved?
 - b) How is switching out to renewable resources advantageous? Illustrate.
 - c) What is resource technology symbiosis related to? Illustrate
- Q.5 Attempt any one** **10**
- a) Give the basics of economic sustainability. Illustrate each
 - b) How is resource conservation carried out?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility, Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) In how many types responsibilities can be distinguished?

a) 4	b) 2
c) 3	d) 1
- 2) How an engineer views her/his responsibilities, depends on the _____ basic attitudes towards responsibilities.

a) 3	b) 2
c) 1	d) 0
- 3) _____ view holds that engineers are responsible to conform to the standard procedures of their profession and fulfil the basic duties defined by the terms of their employment.

a) Beyond one's duty	b) Reasonable care
c) Minimalist	d) None
- 4) _____ refers to the principles of right and wrong behaviour.

a) Moral	b) Oral
c) Coral	d) None
- 5) In the _____ approach, the action provides the most good over least harm.

a) Utilitarian	b) Right
c) Fairness	d) Virtue
- 6) The list of moral rights include _____.

a) To make one's own choices about what kind of life to lead	
b) To be told the truth	
c) Not to be injured	
d) Above all	
- 7) The _____ approach is based on the belief that all equal should be treated equally.

a) Virtue	b) Fairness
c) Right	d) None

- 8) Which approach is a very ancient approach?
- | | |
|-------------|----------------|
| a) Virtue | b) Right |
| c) Fairness | d) Utilitarian |
- 9) _____ is the study of moral principles that governs a person's behaviour or conducting an activity.
- | | |
|--------------|-------------|
| a) Ethics | b) Kinesics |
| c) Proxemics | d) None |
- 10) _____ can help engineers make correct decisions and become better professionals.
- | | |
|---------------------|------------------|
| a) Study of English | b) Study of Math |
| c) Study of ethics | d) None |

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Principles of Management: Practicing Ethics, Responsibility,
Sustainability (BTN05609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Attempt any two** **10**
- a) What is Engineering Ethics? Why is it required to be studied by blooming engineers?
 - b) What are self directed virtues? How are they obtained?
 - c) Compare between Ethics and Morality.
- Q.3 Attempt any one** **10**
- a) Illustrate the various types of virtues with examples.
 - b) How moral autonomy is supported by theories?

Section – II

- Q.4 Attempt any two** **10**
- a) What is a resource? How can it be innovated and conserved?
 - b) How is switching out to renewable resources advantageous? Illustrate.
 - c) What is resource technology symbiosis related to? Illustrate
- Q.5 Attempt any one** **10**
- a) Give the basics of economic sustainability. Illustrate each
 - b) How is resource conservation carried out?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) _____ is the process of identifying and extracting opinions and emotions expressed in text data.

a) Text Classification	b) Sentiment Analysis
c) Speech Recognition	d) Text Summarization
- 2) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
 - a) social media posts, and customer review
 - b) queries and requests
 - c) automatically identify and classify named entities
 - d) recognize and transcribe spoken language
- 3) Algorithms are often used in NLP applications to _____.
 - a) Predict solutions readily available
 - b) automatically learn patterns and relationships in language data
 - c) Fix language constructs
 - d) Decide language sequences
- 4) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.

a) Heart	b) Brain
c) Soul	d) Mind
- 5) Sounds produced by the lower lip and upper teeth _____.

a) Bilabial	b) Labiodental
c) Alveolar	d) Palatal
- 6) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.

a) mean	b) boundary
c) median	d) variance

- 7) What is the main challenge/s of NLP?
a) Handling Ambiguity of Sentences
b) Handling Tokenization
c) Handling POS-Tagging
d) All of the mentioned
- 8) What is Morphological Segmentation?
a) Identify the class of the morphemes
b) Does Discourse Analysis
c) Is an extension of propositional logic
d) None of the mentioned Algorithms are often used in NLP
- 9) "Rohan Was With Her, They Both Go Together", In The Given Sentence Who Is Her Is Unclear, Specify The Type Of Ambiguity?
a) Anaphoric Ambiguity b) Semantic Ambiguity
c) Pragmatic Ambiguity d) Lexical Ambiguity
- 10) Which of the following technique is used to remove semantic ambiguity?
a) Word Sense Disambiguation b) Fuzzy Logic
c) Shallow Semantic Analysis d) Syntactic analysis
- 11) Which of these terms refer to the study of speech process?
a) Phonetics b) Phonetic substances
c) Phonology d) Semantics
- 12) Which of these terms refer to the study of hearing and perception of speech sounds?
a) Auditory phonetics b) Acoustic phonetics
c) Articulatory phonetics d) Laboratory phonetics
- 13) Which algorithm is used for solving temporal probabilistic reasoning?
a) Hill-climbing search b) Hidden markov model
c) Depth-first search d) Breadth-first search
- 14) Which algorithm works by first running the standard forward pass to compute?
a) Smoothing b) Modified smoothing
c) HMM d) Depth-first search algorithm

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three.** **12**
- List the different theories w.r.t word analysis.
 - Illustrate Top -down parsing algorithm with an appropriate example.
 - What is speech processing? State the steps involved.
 - What are Worn-net? Give it's characteristics?
 - Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two.** **08**
- Illustrate the various types of NLP.
 - How ML is used to generate a good NLP analytical structure?
 - List various applications of NLP. Illustrate any one
- Q.4 Attempt any One.** **08**
- Illustrate the morphology paradigms. How finite state machines help?
 - Give the basic characteristics of Morphological diversity in Indian languages

Section – II

- Q.5 Attempt any three.** **12**
- What is Labeling in NLP? Give the steps involved.
 - How are graphical models for sequences developed?
 - What is phonology? Illustrate.
 - Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two.** **08**
- What is Phonology? What are the methods to deal with it?
 - How are semantic relations dealt with in NLP? State various methods.
 - Illustrate the working of Sentiment with an example.
- Q.7 Attempt any One.** **08**
- What are the components of a Question Answering system in multilingual systems? Illustrate.
 - What is CLIR? How does it work?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What is Morphological Segmentation?
 - a) Identify the class of the morphemes
 - b) Does Discourse Analysis
 - c) Is an extension of propositional logic
 - d) None of the mentioned Algorithms are often used in NLP
- 2) "Rohan Was With Her, They Both Go Together", In The Given Sentence Who Is Her Is Unclear, Specify The Type Of Ambiguity?
 - a) Anaphoric Ambiguity
 - b) Semantic Ambiguity
 - c) Pragmatic Ambiguity
 - d) Lexical Ambiguity
- 3) Which of the following technique is used to remove semantic ambiguity?
 - a) Word Sense Disambiguation
 - b) Fuzzy Logic
 - c) Shallow Semantic Analysis
 - d) Syntactic analysis
- 4) Which of these terms refer to the study of speech process?
 - a) Phonetics
 - b) Phonetic substances
 - c) Phonology
 - d) Semantics
- 5) Which of these terms refer to the study of hearing and perception of speech sounds?
 - a) Auditory phonetics
 - b) Acoustic phonetics
 - c) Articulatory phonetics
 - d) Laboratory phonetics
- 6) Which algorithm is used for solving temporal probabilistic reasoning?
 - a) Hill-climbing search
 - b) Hidden markov model
 - c) Depth-first search
 - d) Breadth-first search
- 7) Which algorithm works by first running the standard forward pass to compute?
 - a) Smoothing
 - b) Modified smoothing
 - c) HMM
 - d) Depth-first search algorithm

- 8) _____ is the process of identifying and extracting opinions and emotions expressed in text data.
- a) Text Classification
 - b) Sentiment Analysis
 - c) Speech Recognition
 - d) Text Summarization
- 9) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
- a) social media posts, and customer review
 - b) queries and requests
 - c) automatically identify and classify named entities
 - d) recognize and transcribe spoken language
- 10) Algorithms are often used in NLP applications to _____.
- a) Predict solutions readily available
 - b) automatically learn patterns and relationships in language data
 - c) Fix language constructs
 - d) Decide language sequences
- 11) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.
- a) Heart
 - b) Brain
 - c) Soul
 - d) Mind
- 12) Sounds produced by the lower lip and upper teeth _____.
- a) Bilabial
 - b) Labiodental
 - c) Alveolar
 - d) Palatal
- 13) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.
- a) mean
 - b) boundary
 - c) median
 - d) variance
- 14) What is the main challenge/s of NLP?
- a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- List the different theories w.r.t word analysis.
 - Illustrate Top -down parsing algorithm with an appropriate example.
 - What is speech processing? State the steps involved.
 - What are Worn-net? Give it's characteristics?
 - Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two. 08**
- Illustrate the various types of NLP.
 - How ML is used to generate a good NLP analytical structure?
 - List various applications of NLP. Illustrate any one
- Q.4 Attempt any One. 08**
- Illustrate the morphology paradigms. How finite state machines help?
 - Give the basic characteristics of Morphological diversity in Indian languages

Section – II

- Q.5 Attempt any three. 12**
- What is Labeling in NLP? Give the steps involved.
 - How are graphical models for sequences developed?
 - What is phonology? Illustrate.
 - Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two. 08**
- What is Phonology? What are the methods to deal with it?
 - How are semantic relations dealt with in NLP? State various methods.
 - Illustrate the working of Sentiment with an example.
- Q.7 Attempt any One. 08**
- What are the components of a Question Answering system in multilingual systems? Illustrate.
 - What is CLIR? How does it work?

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Which of these terms refer to the study of speech process?
 - a) Phonetics
 - b) Phonetic substances
 - c) Phonology
 - d) Semantics
- 2) Which of these terms refer to the study of hearing and perception of speech sounds?
 - a) Auditory phonetics
 - b) Acoustic phonetics
 - c) Articulatory phonetics
 - d) Laboratory phonetics
- 3) Which algorithm is used for solving temporal probabilistic reasoning?
 - a) Hill-climbing search
 - b) Hidden markov model
 - c) Depth-first search
 - d) Breadth-first search
- 4) Which algorithm works by first running the standard forward pass to compute?
 - a) Smoothing
 - b) Modified smoothing
 - c) HMM
 - d) Depth-first search algorithm
- 5) _____ is the process of identifying and extracting opinions and emotions expressed in text data.
 - a) Text Classification
 - b) Sentiment Analysis
 - c) Speech Recognition
 - d) Text Summarization
- 6) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
 - a) social media posts, and customer review
 - b) queries and requests
 - c) automatically identify and classify named entities
 - d) recognize and transcribe spoken language
- 7) Algorithms are often used in NLP applications to _____.
 - a) Predict solutions readily available
 - b) automatically learn patterns and relationships in language data
 - c) Fix language constructs
 - d) Decide language sequences

- 8) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.
- | | |
|----------|----------|
| a) Heart | b) Brain |
| c) Soul | d) Mind |
- 9) Sounds produced by the lower lip and upper teeth _____.
- | | |
|-------------|----------------|
| a) Bilabial | b) Labiodental |
| c) Alveolar | d) Palatal |
- 10) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.
- | | |
|-----------|-------------|
| a) mean | b) boundary |
| c) median | d) variance |
- 11) What is the main challenge/s of NLP?
- a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 12) What is Morphological Segmentation?
- a) Identify the class of the morphemes
 - b) Does Discourse Analysis
 - c) Is an extension of propositional logic
 - d) None of the mentioned Algorithms are often used in NLP
- 13) "Rohan Was With Her, They Both Go Together", In The Given Sentence Who Is Her Is Unclear, Specify The Type Of Ambiguity?
- | | |
|------------------------|-----------------------|
| a) Anaphoric Ambiguity | b) Semantic Ambiguity |
| c) Pragmatic Ambiguity | d) Lexical Ambiguity |
- 14) Which of the following technique is used to remove semantic ambiguity?
- | | |
|------------------------------|-----------------------|
| a) Word Sense Disambiguation | b) Fuzzy Logic |
| c) Shallow Semantic Analysis | d) Syntactic analysis |

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three.** **12**
- List the different theories w.r.t word analysis.
 - Illustrate Top -down parsing algorithm with an appropriate example.
 - What is speech processing? State the steps involved.
 - What are Worn-net? Give it's characteristics?
 - Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two.** **08**
- Illustrate the various types of NLP.
 - How ML is used to generate a good NLP analytical structure?
 - List various applications of NLP. Illustrate any one
- Q.4 Attempt any One.** **08**
- Illustrate the morphology paradigms. How finite state machines help?
 - Give the basic characteristics of Morphological diversity in Indian languages

Section – II

- Q.5 Attempt any three.** **12**
- What is Labeling in NLP? Give the steps involved.
 - How are graphical models for sequences developed?
 - What is phonology? Illustrate.
 - Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two.** **08**
- What is Phonology? What are the methods to deal with it?
 - How are semantic relations dealt with in NLP? State various methods.
 - Illustrate the working of Sentiment with an example.
- Q.7 Attempt any One.** **08**
- What are the components of a Question Answering system in multilingual systems? Illustrate.
 - What is CLIR? How does it work?

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.
 - a) mean
 - b) boundary
 - c) median
 - d) variance
- 2) What is the main challenge/s of NLP?
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 3) What is Morphological Segmentation?
 - a) Identify the class of the morphemes
 - b) Does Discourse Analysis
 - c) Is an extension of propositional logic
 - d) None of the mentioned Algorithms are often used in NLP
- 4) "Rohan Was With Her, They Both Go Together", In The Given Sentence Who Is Her Is Unclear, Specify The Type Of Ambiguity?
 - a) Anaphoric Ambiguity
 - b) Semantic Ambiguity
 - c) Pragmatic Ambiguity
 - d) Lexical Ambiguity
- 5) Which of the following technique is used to remove semantic ambiguity?
 - a) Word Sense Disambiguation
 - b) Fuzzy Logic
 - c) Shallow Semantic Analysis
 - d) Syntactic analysis
- 6) Which of these terms refer to the study of speech process?
 - a) Phonetics
 - b) Phonetic substances
 - c) Phonology
 - d) Semantics
- 7) Which of these terms refer to the study of hearing and perception of speech sounds?
 - a) Auditory phonetics
 - b) Acoustic phonetics
 - c) Articulatory phonetics
 - d) Laboratory phonetics

- 8) Which algorithm is used for solving temporal probabilistic reasoning?
a) Hill-climbing search b) Hidden markov model
c) Depth-first search d) Breadth-first search
- 9) Which algorithm works by first running the standard forward pass to compute?
a) Smoothing b) Modified smoothing
c) HMM d) Depth-first search algorithm
- 10) _____ is the process of identifying and extracting opinions and emotions expressed in text data.
a) Text Classification b) Sentiment Analysis
c) Speech Recognition d) Text Summarization
- 11) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
a) social media posts, and customer review
b) queries and requests
c) automatically identify and classify named entities
d) recognize and transcribe spoken language
- 12) Algorithms are often used in NLP applications to _____.
a) Predict solutions readily available
b) automatically learn patterns and relationships in language data
c) Fix language constructs
d) Decide language sequences
- 13) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.
a) Heart b) Brain
c) Soul d) Mind
- 14) Sounds produced by the lower lip and upper teeth _____.
a) Bilabial b) Labiodental
c) Alveolar d) Palatal

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (BTN05612)

Day & Date: Monday, 03-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three.** **12**
- List the different theories w.r.t word analysis.
 - Illustrate Top -down parsing algorithm with an appropriate example.
 - What is speech processing? State the steps involved.
 - What are Worn-net? Give it's characteristics?
 - Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two.** **08**
- Illustrate the various types of NLP.
 - How ML is used to generate a good NLP analytical structure?
 - List various applications of NLP. Illustrate any one
- Q.4 Attempt any One.** **08**
- Illustrate the morphology paradigms. How finite state machines help?
 - Give the basic characteristics of Morphological diversity in Indian languages

Section – II

- Q.5 Attempt any three.** **12**
- What is Labeling in NLP? Give the steps involved.
 - How are graphical models for sequences developed?
 - What is phonology? Illustrate.
 - Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two.** **08**
- What is Phonology? What are the methods to deal with it?
 - How are semantic relations dealt with in NLP? State various methods.
 - Illustrate the working of Sentiment with an example.
- Q.7 Attempt any One.** **08**
- What are the components of a Question Answering system in multilingual systems? Illustrate.
 - What is CLIR? How does it work?

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any four of the following** **12**
- Differentiate Supervised and Unsupervised Machine Learning.
 - Describe common terminologies of Decision Trees and Naive Bayes classification algorithm.
 - Explain any two business applications of machine learning.
 - How can we relate standard deviation and variance?
 - Why is validation necessary in machine learning?
- Q.3 Answer any One from the following questions** **08**
- With the help of an example describe in detail Decision Tree Algorithm. Explain the concepts of Entropy and Information gain.
 - What is Descending the Error Curve and what does it represent. Illustrate with an example.
- Q.4 Answer the following question.** **08**
- What is learning curve? To create a learning curve chart what are the points must be considered while implementing learning cure?

Section – II

- Q.5 Attempt any Four of the following questions.** **12**
- Explain the process of feature engineering.
 - What is the difference between in sample and out of sample?
 - Define bias, variance underfitting, overfitting, bias Vs. variance tradeoff.
 - What is standard deviation? Give the steps to find Standard Deviation.
 - Explain in detail the Machine Learning Cycle.
- Q.6 Answer any One from the following questions** **08**
- What is Cross Validation? Explain the process of implementing Cross validation methods.
 - What is feature extraction, feature construction, and feature selection? Explain with example.
- Q.7 Answer the following question** **08**
- A class of students took a math test. The scores for the test were 85, 86, 100, 76, 81, 93, 84, 99, 71, 69, 93, 85, 81, 87, and 89. Calculate the mean, variance and standard deviation and determine when the teacher knows that most students are performing around the same level

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What does dimensionality reduction reduce?
 - a) Collinearity
 - b) Stochastic
 - c) Entropy
 - d) Performance
- 2) Some telecommunication company wants to segment their customers into distinct groups, this is an example of _____.
 - a) supervised learning
 - b) unsupervised learning
 - c) data extraction
 - d) reinforcement learning
- 3) Which of the following is the best machine learning method?
 - a) Accuracy
 - b) Scalable
 - c) Fast
 - d) All of above
- 4) In multiclass classification number of classes must be _____.
 - a) equals to two
 - b) less than two
 - c) greater than two
 - d) None
- 5) You are given seismic data and you want to predict next earthquake, this is an example of _____.
 - a) supervised learning
 - b) unsupervised learning
 - c) reinforcement learning
 - d) dimensionality reduction
- 6) Prediction is _____.
 - a) discipline in statistics used to find projections in multidimensional data
 - b) value entered in database by expert
 - c) the result of application of specific theory or rule in a specific case
 - d) independent of data
- 7) Impact of high variance on the training set?
 - a) underfitting
 - b) overfitting
 - c) both underfitting & overfitting
 - d) depends upon the dataset
- 8) If machine learning model output doesn't involve target variable, then that model is called as _____.
 - a) predictive model
 - b) descriptive model
 - c) reinforcement learning
 - d) all of the above

- 9) In what type of learning labelled training data is used _____.
- a) Supervised learning b) Unsupervised learning
c) Reinforcement learning d) Active learning
- 10) In the example of predicting number of babies based on stork's population, Number of babies is _____.
- a) Feature b) Observation
c) Outcome d) Attribute
- 11) Following are the descriptive models _____.
- a) Classification b) Clustering
c) Association rule d) Both a and b
- 12) In following type of feature selection method, we start with empty feature set _____.
- a) backward feature selection b) forward feature selection
c) All of above d) None of above
- 13) A person trained to interact with a human expert in order to capture their knowledge.
- a) knowledge developer b) knowledge programmer
c) knowledge engineer d) knowledge extractor
- 14) What characterize unlabeled examples in machine learning _____.
- a) there is plenty of confusing knowledge
b) there is prior knowledge
c) there is no confusing knowledge
d) there is no prior knowledge

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any four of the following** **12**
- Differentiate Supervised and Unsupervised Machine Learning.
 - Describe common terminologies of Decision Trees and Naive Bayes classification algorithm.
 - Explain any two business applications of machine learning.
 - How can we relate standard deviation and variance?
 - Why is validation necessary in machine learning?
- Q.3 Answer any One from the following questions** **08**
- With the help of an example describe in detail Decision Tree Algorithm. Explain the concepts of Entropy and Information gain.
 - What is Descending the Error Curve and what does it represent. Illustrate with an example.
- Q.4 Answer the following question.** **08**
- What is learning curve? To create a learning curve chart what are the points must be considered while implementing learning cure?

Section – II

- Q.5 Attempt any Four of the following questions.** **12**
- Explain the process of feature engineering.
 - What is the difference between in sample and out of sample?
 - Define bias, variance underfitting, overfitting, bias Vs. variance tradeoff.
 - What is standard deviation? Give the steps to find Standard Deviation.
 - Explain in detail the Machine Learning Cycle.
- Q.6 Answer any One from the following questions** **08**
- What is Cross Validation? Explain the process of implementing Cross validation methods.
 - What is feature extraction, feature construction, and feature selection? Explain with example.
- Q.7 Answer the following question** **08**
- A class of students took a math test. The scores for the test were 85, 86, 100, 76, 81, 93, 84, 99, 71, 69, 93, 85, 81, 87, and 89. Calculate the mean, variance and standard deviation and determine when the teacher knows that most students are performing around the same level

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In multiclass classification number of classes must be _____.
 - a) equals to two
 - b) less than two
 - c) greater than two
 - d) None
- 2) You are given seismic data and you want to predict next earthquake, this is an example of _____.
 - a) supervised learning
 - b) unsupervised learning
 - c) reinforcement learning
 - d) dimensionality reduction
- 3) Prediction is _____.
 - a) discipline in statistics used to find projections in multidimensional data
 - b) value entered in database by expert
 - c) the result of application of specific theory or rule in a specific case
 - d) independent of data
- 4) Impact of high variance on the training set?
 - a) underfitting
 - b) overfitting
 - c) both underfitting & overfitting
 - d) depends upon the dataset
- 5) If machine learning model output doesn't involve target variable, then that model is called as _____.
 - a) predictive model
 - b) descriptive model
 - c) reinforcement learning
 - d) all of the above
- 6) In what type of learning labelled training data is used _____.
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Reinforcement learning
 - d) Active learning
- 7) In the example of predicting number of babies based on stork's population, Number of babies is _____.
 - a) Feature
 - b) Observation
 - c) Outcome
 - d) Attribute
- 8) Following are the descriptive models _____.
 - a) Classification
 - b) Clustering
 - c) Association rule
 - d) Both a and b

- 9) In following type of feature selection method, we start with empty feature set _____.
a) backward feature selection b) forward feature selection
c) All of above d) None of above
- 10) A person trained to interact with a human expert in order to capture their knowledge.
a) knowledge developer b) knowledge programmer
c) knowledge engineer d) knowledge extractor
- 11) What characterize unlabeled examples in machine learning _____.
a) there is plenty of confusing knowledge
b) there is prior knowledge
c) there is no confusing knowledge
d) there is no prior knowledge
- 12) What does dimensionality reduction reduce?
a) Collinearity b) Stochastic
c) Entropy d) Performance
- 13) Some telecommunication company wants to segment their customers into distinct groups, this is an example of _____.
a) supervised learning b) unsupervised learning
c) data extraction d) reinforcement learning
- 14) Which of the following is the best machine learning method?
a) Accuracy b) Scalable
c) Fast d) All of above

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any four of the following** **12**
- Differentiate Supervised and Unsupervised Machine Learning.
 - Describe common terminologies of Decision Trees and Naive Bayes classification algorithm.
 - Explain any two business applications of machine learning.
 - How can we relate standard deviation and variance?
 - Why is validation necessary in machine learning?
- Q.3 Answer any One from the following questions** **08**
- With the help of an example describe in detail Decision Tree Algorithm. Explain the concepts of Entropy and Information gain.
 - What is Descending the Error Curve and what does it represent. Illustrate with an example.
- Q.4 Answer the following question.** **08**
- What is learning curve? To create a learning curve chart what are the points must be considered while implementing learning cure?

Section – II

- Q.5 Attempt any Four of the following questions.** **12**
- Explain the process of feature engineering.
 - What is the difference between in sample and out of sample?
 - Define bias, variance underfitting, overfitting, bias Vs. variance tradeoff.
 - What is standard deviation? Give the steps to find Standard Deviation.
 - Explain in detail the Machine Learning Cycle.
- Q.6 Answer any One from the following questions** **08**
- What is Cross Validation? Explain the process of implementing Cross validation methods.
 - What is feature extraction, feature construction, and feature selection? Explain with example.
- Q.7 Answer the following question** **08**
- A class of students took a math test. The scores for the test were 85, 86, 100, 76, 81, 93, 84, 99, 71, 69, 93, 85, 81, 87, and 89. Calculate the mean, variance and standard deviation and determine when the teacher knows that most students are performing around the same level

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A person trained to interact with a human expert in order to capture their knowledge.
 - a) knowledge developer
 - b) knowledge programmer
 - c) knowledge engineer
 - d) knowledge extractor
- 2) What characterize unlabeled examples in machine learning _____.
 - a) there is plenty of confusing knowledge
 - b) there is prior knowledge
 - c) there is no confusing knowledge
 - d) there is no prior knowledge
- 3) What does dimensionality reduction reduce?
 - a) Collinearity
 - b) Stochastic
 - c) Entropy
 - d) Performance
- 4) Some telecommunication company wants to segment their customers into distinct groups, this is an example of _____.
 - a) supervised learning
 - b) unsupervised learning
 - c) data extraction
 - d) reinforcement learning
- 5) Which of the following is the best machine learning method?
 - a) Accuracy
 - b) Scalable
 - c) Fast
 - d) All of above
- 6) In multiclass classification number of classes must be _____.
 - a) equals to two
 - b) less than two
 - c) greater than two
 - d) None
- 7) You are given seismic data and you want to predict next earthquake, this is an example of _____.
 - a) supervised learning
 - b) unsupervised learning
 - c) reinforcement learning
 - d) dimensionality reduction

- 8) Prediction is _____.
a) discipline in statistics used to find projections in multidimensional data
b) value entered in database by expert
c) the result of application of specific theory or rule in a specific case
d) independent of data
- 9) Impact of high variance on the training set?
a) underfitting
b) overfitting
c) both underfitting & overfitting
d) depends upon the dataset
- 10) If machine learning model output doesn't involve target variable, then that model is called as _____.
a) predictive model
b) descriptive model
c) reinforcement learning
d) all of the above
- 11) In what type of learning labelled training data is used _____.
a) Supervised learning
b) Unsupervised learning
c) Reinforcement learning
d) Active learning
- 12) In the example of predicting number of babies based on stork's population, Number of babies is _____.
a) Feature
b) Observation
c) Outcome
d) Attribute
- 13) Following are the descriptive models _____.
a) Classification
b) Clustering
c) Association rule
d) Both a and b
- 14) In following type of feature selection method, we start with empty feature set _____.
a) backward feature selection
b) forward feature selection
c) All of above
d) None of above

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Machine Learning (197046701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Attempt any four of the following** **12**
- Differentiate Supervised and Unsupervised Machine Learning.
 - Describe common terminologies of Decision Trees and Naive Bayes classification algorithm.
 - Explain any two business applications of machine learning.
 - How can we relate standard deviation and variance?
 - Why is validation necessary in machine learning?
- Q.3 Answer any One from the following questions** **08**
- With the help of an example describe in detail Decision Tree Algorithm. Explain the concepts of Entropy and Information gain.
 - What is Descending the Error Curve and what does it represent. Illustrate with an example.
- Q.4 Answer the following question.** **08**
- What is learning curve? To create a learning curve chart what are the points must be considered while implementing learning cure?

Section – II

- Q.5 Attempt any Four of the following questions.** **12**
- Explain the process of feature engineering.
 - What is the difference between in sample and out of sample?
 - Define bias, variance underfitting, overfitting, bias Vs. variance tradeoff.
 - What is standard deviation? Give the steps to find Standard Deviation.
 - Explain in detail the Machine Learning Cycle.
- Q.6 Answer any One from the following questions** **08**
- What is Cross Validation? Explain the process of implementing Cross validation methods.
 - What is feature extraction, feature construction, and feature selection? Explain with example.
- Q.7 Answer the following question** **08**
- A class of students took a math test. The scores for the test were 85, 86, 100, 76, 81, 93, 84, 99, 71, 69, 93, 85, 81, 87, and 89. Calculate the mean, variance and standard deviation and determine when the teacher knows that most students are performing around the same level

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Which of the following is/are White box technique?
 - a) Statement Testing
 - b) Decision Testing
 - c) Condition Coverage
 - d) All of the mentioned
- 2) Alpha testing is done at _____.
 - a) Developer's end
 - b) User's end
 - c) Developer's & User's end
 - d) None of the mentioned
- 3) What is error guessing in software testing?
 - a) Test control management techniques
 - b) Test verification techniques
 - c) Test execution techniques
 - d) Test case design/ data management techniques
- 4) _____ are the Testers of Unit Testing.
 - a) Developers
 - b) Business Analysts
 - c) Independent Testers
 - d) Customers
- 5) Which Test Document describes the Exit Criteria of Testing?
 - a) Test Case
 - b) Test Plan
 - c) Test Summary Report
 - d) Defect Report
- 6) _____ is not a Software Test Life Cycle Phase.
 - a) Requirements Gathering
 - b) Test Planning
 - c) Test Closure
 - d) Test Design
- 7) What is the relationship between testing and quality assurance?
 - a) QA is part of a complete testing process
 - b) Testing and QA are two terms for the same thing
 - c) Testing is a part of complete QA process
 - d) When Testing is over it becomes QA
- 8) Which of the following is not another name of white box testing?
 - a) Structural testing
 - b) Behavioral testing
 - c) Glass box testing
 - d) None of the mentioned

- 9) Which of the following is non-functional testing?
a) Black box testing b) Performance testing
c) Unit testing d) None of the mentioned
- 10) Unit testing is done by _____.
a) Users b) Developers
c) Customers d) Analyst
- 11) Which of the following is black box testing?
a) Basic path testing b) Boundary value analysis
c) Code path analysis d) None of the mentioned
- 12) Beta testing is done at _____.
a) User's end b) Developer's end
c) Both a & b d) None
- 13) Testing done without planning and Documentation is called _____.
a) Unit testing b) Regression testing
c) Adhoc testing d) None of the mentioned
- 14) Validation refers to the set of tasks that ensure that software correctly implements a specific function.
a) True b) False

Seat No.	
-----------------	--

**Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Answer any FOUR from the following questions** **12**
- a) Describe in short on following levels of Testing
 - i) Proposal Testing
 - ii) Requirement Testing
 - iii) Design Testing
 - iv) Code Review
 - v) Integration testing
 - b) Differentiate between following levels of Testing.
 - i) Unit testing and Module Testing
 - ii) White Box testing and Black Box testing
 - c) Describe Alpha, Beta, Gamma testing and Acceptance testing during each phase of Software development Testing.
 - d) Explain the concept Test Team Approach.
 - e) Which skills are expected in a good tester?
- Q.3 Answer any ONE from the following questions** **08**
- a) Describe in detail Defect management Process.
 - b) Explain in detail Testing Methodology.
- Q.4 Answer the following question.** **08**
- With a neat diagram explain the following levels of software testing.
- Note: Consider Internet Banking Modules.**
- i) Unit Testing
 - ii) Module Testing
 - iii) Integration Testing

Section – II

- Q.5 Answer any FOUR from the following questions. 12**
- a) What is Quality and Software Quality? Explain the Software Quality Dilemma?
 - b) What are the Benefits of Automation and Tools?
 - c) List out the ISO 9000 Quality Standards.
 - d) Describe various Goals and Metrics of Software Quality Assurance.
 - e) What are the steps of Writing and Tracking Test Cases?
- Q.6 Answer any ONE from the following questions. 08**
- a) Describe in detail the process of Capability Maturity Model (CMM).
 - b) Describe the White box testing techniques, Data Coverage and Code Coverage.
- Q.7 Answer the following question. 08**
- Discuss about The Goal of Test Case Planning and also explain Test Case Organization and Tracking.

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Which of the following is not another name of white box testing?
 - a) Structural testing
 - b) Behavioral testing
 - c) Glass box testing
 - d) None of the mentioned
- 2) Which of the following is non-functional testing?
 - a) Black box testing
 - b) Performance testing
 - c) Unit testing
 - d) None of the mentioned
- 3) Unit testing is done by _____.
 - a) Users
 - b) Developers
 - c) Customers
 - d) Analyst
- 4) Which of the following is black box testing?
 - a) Basic path testing
 - b) Boundary value analysis
 - c) Code path analysis
 - d) None of the mentioned
- 5) Beta testing is done at _____.
 - a) User's end
 - b) Developer's end
 - c) Both a & b
 - d) None
- 6) Testing done without planning and Documentation is called _____.
 - a) Unit testing
 - b) Regression testing
 - c) Adhoc testing
 - d) None of the mentioned
- 7) Validation refers to the set of tasks that ensure that software correctly implements a specific function.
 - a) True
 - b) False
- 8) Which of the following is/are White box technique?
 - a) Statement Testing
 - b) Decision Testing
 - c) Condition Coverage
 - d) All of the mentioned
- 9) Alpha testing is done at _____.
 - a) Developer's end
 - b) User's end
 - c) Developer's & User's end
 - d) None of the mentioned

- 10)** What is error guessing in software testing?
- a) Test control management techniques
 - b) Test verification techniques
 - c) Test execution techniques
 - d) Test case design/ data management techniques
- 11)** _____ are the Testers of Unit Testing.
- a) Developers
 - b) Business Analysts
 - c) Independent Testers
 - d) Customers
- 12)** Which Test Document describes the Exit Criteria of Testing?
- a) Test Case
 - b) Test Plan
 - c) Test Summary Report
 - d) Defect Report
- 13)** _____ is not a Software Test Life Cycle Phase.
- a) Requirements Gathering
 - b) Test Planning
 - c) Test Closure
 - d) Test Design
- 14)** What is the relationship between testing and quality assurance?
- a) QA is part of a complete testing process
 - b) Testing and QA are two terms for the same thing
 - c) Testing is a part of complete QA process
 - d) When Testing is over it becomes QA

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Answer any FOUR from the following questions** **12**
- a) Describe in short on following levels of Testing
 - i) Proposal Testing
 - ii) Requirement Testing
 - iii) Design Testing
 - iv) Code Review
 - v) Integration testing
 - b) Differentiate between following levels of Testing.
 - i) Unit testing and Module Testing
 - ii) White Box testing and Black Box testing
 - c) Describe Alpha, Beta, Gamma testing and Acceptance testing during each phase of Software development Testing.
 - d) Explain the concept Test Team Approach.
 - e) Which skills are expected in a good tester?
- Q.3 Answer any ONE from the following questions** **08**
- a) Describe in detail Defect management Process.
 - b) Explain in detail Testing Methodology.
- Q.4 Answer the following question.** **08**
- With a neat diagram explain the following levels of software testing.
- Note: Consider Internet Banking Modules.**
- i) Unit Testing
 - ii) Module Testing
 - iii) Integration Testing

Section – II

- Q.5 Answer any FOUR from the following questions. 12**
- a) What is Quality and Software Quality? Explain the Software Quality Dilemma?
 - b) What are the Benefits of Automation and Tools?
 - c) List out the ISO 9000 Quality Standards.
 - d) Describe various Goals and Metrics of Software Quality Assurance.
 - e) What are the steps of Writing and Tracking Test Cases?
- Q.6 Answer any ONE from the following questions. 08**
- a) Describe in detail the process of Capability Maturity Model (CMM).
 - b) Describe the White box testing techniques, Data Coverage and Code Coverage.
- Q.7 Answer the following question. 08**
- Discuss about The Goal of Test Case Planning and also explain Test Case Organization and Tracking.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Which of the following is black box testing?
 - a) Basic path testing
 - b) Boundary value analysis
 - c) Code path analysis
 - d) None of the mentioned
- 2) Beta testing is done at _____.
 - a) User's end
 - b) Developer's end
 - c) Both a & b
 - d) None
- 3) Testing done without planning and Documentation is called _____.
 - a) Unit testing
 - b) Regression testing
 - c) Adhoc testing
 - d) None of the mentioned
- 4) Validation refers to the set of tasks that ensure that software correctly implements a specific function.
 - a) True
 - b) False
- 5) Which of the following is/are White box technique?
 - a) Statement Testing
 - b) Decision Testing
 - c) Condition Coverage
 - d) All of the mentioned
- 6) Alpha testing is done at _____.
 - a) Developer's end
 - b) User's end
 - c) Developer's & User's end
 - d) None of the mentioned
- 7) What is error guessing in software testing?
 - a) Test control management techniques
 - b) Test verification techniques
 - c) Test execution techniques
 - d) Test case design/ data management techniques
- 8) _____ are the Testers of Unit Testing.
 - a) Developers
 - b) Business Analysts
 - c) Independent Testers
 - d) Customers
- 9) Which Test Document describes the Exit Criteria of Testing?
 - a) Test Case
 - b) Test Plan
 - c) Test Summary Report
 - d) Defect Report

- 10) _____ is not a Software Test Life Cycle Phase.
- a) Requirements Gathering
 - b) Test Planning
 - c) Test Closure
 - d) Test Design
- 11) What is the relationship between testing and quality assurance?
- a) QA is part of a complete testing process
 - b) Testing and QA are two terms for the same thing
 - c) Testing is a part of complete QA process
 - d) When Testing is over it becomes QA
- 12) Which of the following is not another name of white box testing?
- a) Structural testing
 - b) Behavioral testing
 - c) Glass box testing
 - d) None of the mentioned
- 13) Which of the following is non-functional testing?
- a) Black box testing
 - b) Performance testing
 - c) Unit testing
 - d) None of the mentioned
- 14) Unit testing is done by _____.
- a) Users
 - b) Developers
 - c) Customers
 - d) Analyst

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Answer any FOUR from the following questions 12**
- a) Describe in short on following levels of Testing
 - i) Proposal Testing
 - ii) Requirement Testing
 - iii) Design Testing
 - iv) Code Review
 - v) Integration testing
 - b) Differentiate between following levels of Testing.
 - i) Unit testing and Module Testing
 - ii) White Box testing and Black Box testing
 - c) Describe Alpha, Beta, Gamma testing and Acceptance testing during each phase of Software development Testing.
 - d) Explain the concept Test Team Approach.
 - e) Which skills are expected in a good tester?
- Q.3 Answer any ONE from the following questions 08**
- a) Describe in detail Defect management Process.
 - b) Explain in detail Testing Methodology.
- Q.4 Answer the following question. 08**
- With a neat diagram explain the following levels of software testing.
- Note: Consider Internet Banking Modules.**
- i) Unit Testing
 - ii) Module Testing
 - iii) Integration Testing

Section – II

- Q.5 Answer any FOUR from the following questions. 12**
- a) What is Quality and Software Quality? Explain the Software Quality Dilemma?
 - b) What are the Benefits of Automation and Tools?
 - c) List out the ISO 9000 Quality Standards.
 - d) Describe various Goals and Metrics of Software Quality Assurance.
 - e) What are the steps of Writing and Tracking Test Cases?
- Q.6 Answer any ONE from the following questions. 08**
- a) Describe in detail the process of Capability Maturity Model (CMM).
 - b) Describe the White box testing techniques, Data Coverage and Code Coverage.
- Q.7 Answer the following question. 08**
- Discuss about The Goal of Test Case Planning and also explain Test Case Organization and Tracking.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) _____ is not a Software Test Life Cycle Phase.

a) Requirements Gathering	b) Test Planning
c) Test Closure	d) Test Design
- 2) What is the relationship between testing and quality assurance?

a) QA is part of a complete testing process
b) Testing and QA are two terms for the same thing
c) Testing is a part of complete QA process
d) When Testing is over it becomes QA
- 3) Which of the following is not another name of white box testing?

a) Structural testing	b) Behavioral testing
c) Glass box testing	d) None of the mentioned
- 4) Which of the following is non-functional testing?

a) Black box testing	b) Performance testing
c) Unit testing	d) None of the mentioned
- 5) Unit testing is done by _____.

a) Users	b) Developers
c) Customers	d) Analyst
- 6) Which of the following is black box testing?

a) Basic path testing	b) Boundary value analysis
c) Code path analysis	d) None of the mentioned
- 7) Beta testing is done at _____.

a) User's end	b) Developer's end
c) Both a & b	d) None
- 8) Testing done without planning and Documentation is called _____.

a) Unit testing	b) Regression testing
c) Adhoc testing	d) None of the mentioned

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Software Testing and Quality Assurance (197046703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data wherever necessary and mention it clearly.

Section – I

- Q.2 Answer any FOUR from the following questions 12**
- a) Describe in short on following levels of Testing
 - i) Proposal Testing
 - ii) Requirement Testing
 - iii) Design Testing
 - iv) Code Review
 - v) Integration testing
 - b) Differentiate between following levels of Testing.
 - i) Unit testing and Module Testing
 - ii) White Box testing and Black Box testing
 - c) Describe Alpha, Beta, Gamma testing and Acceptance testing during each phase of Software development Testing.
 - d) Explain the concept Test Team Approach.
 - e) Which skills are expected in a good tester?
- Q.3 Answer any ONE from the following questions 08**
- a) Describe in detail Defect management Process.
 - b) Explain in detail Testing Methodology.
- Q.4 Answer the following question. 08**
- With a neat diagram explain the following levels of software testing.
- Note: Consider Internet Banking Modules.**
- i) Unit Testing
 - ii) Module Testing
 - iii) Integration Testing

Section – II

- Q.5 Answer any FOUR from the following questions. 12**
- a) What is Quality and Software Quality? Explain the Software Quality Dilemma?
 - b) What are the Benefits of Automation and Tools?
 - c) List out the ISO 9000 Quality Standards.
 - d) Describe various Goals and Metrics of Software Quality Assurance.
 - e) What are the steps of Writing and Tracking Test Cases?
- Q.6 Answer any ONE from the following questions. 08**
- a) Describe in detail the process of Capability Maturity Model (CMM).
 - b) Describe the White box testing techniques, Data Coverage and Code Coverage.
- Q.7 Answer the following question. 08**
- Discuss about The Goal of Test Case Planning and also explain Test Case Organization and Tracking.

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Figures drawn by pencil, ruler only indicate full marks.
 - 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is NOT a step in the KDD process?
 - a) Data cleaning and preprocessing
 - b) Data selection
 - c) Data transformation
 - d) Data visualization
- 2) Which of the following is NOT a potential issue in data mining related to the quality of the data?
 - a) Data may be incomplete
 - b) Data may be noisy or contain errors
 - c) Data may be outdated
 - d) Data may be perfectly clean and accurate
- 3) What is the main goal of data integration in data mining?
 - a) To combine data from multiple sources into a single dataset
 - b) To identify and remove duplicates in the data
 - c) To correct errors in the data
 - d) To improve the accuracy of data analysis
- 4) Market basket analysis is a technique used to identify:
 - a) Trending products in a store
 - b) Strong associations between items in a shopping basket
 - c) Weak associations between items in a shopping basket
 - d) Products with the highest sales volume
- 5) Which of the following techniques is commonly used in market basket analysis?

a) Decision trees	b) Neural networks
c) Association rule mining	d) K-means clustering

- 6) Which of the following is NOT a type of classification method in data mining?
- a) Decision tree
 - b) Logistic regression
 - c) Naive Bayes
 - d) Clustering
- 7) What does the "K" in K-nearest neighbors (KNN) classification stand for?
- a) The number of features in the data
 - b) The number of classes in the data
 - c) The number of nearest neighbors used to classify a data point
 - d) The number of dimensions in the data
- 8) Which of the following is NOT a type of clustering method?
- a) K-means
 - b) Density-based
 - c) Hierarchical
 - d) Regression
- 9) Which of the following is NOT a characteristic of hierarchical clustering?
- a) It is a top-down approach
 - b) It creates a tree-like structure
 - c) It is computationally efficient
 - d) It is sensitive to noise and outliers
- 10) What is the minimum support threshold in the Apriori algorithm?
- a) The minimum number of times an item must appear in the dataset for it to be considered for analysis
 - b) The minimum number of items that must be present in a transaction for it to be considered for analysis
 - c) The minimum probability that an association rule must meet to be considered valid
 - d) The minimum number of items that must be present in a transaction for it to be considered for association rule analysis
- 11) Which of the following is NOT a type of web mining?
- a) Web structure mining
 - b) Web content mining
 - c) Web usage mining
 - d) Web security mining
- 12) How is web content mining different from traditional data mining?
- a) Web content mining focuses on text data, while traditional data mining focuses on numerical data.
 - b) Web content mining is only applicable to the web, while traditional data mining can be applied to any data set
 - c) Web content mining requires specialized algorithms, while traditional data mining uses general.
 - d) Web content mining is more difficult to implement than traditional data mining.
- 13) Which of the following is NOT a potential application of web content mining?
- a) Sentiment analysis of online reviews
 - b) Extracting product information from e-commerce websites
 - c) Identifying trends in social media posts
 - d) Predicting stock prices based on news articles
- 14) What is the main goal of outlier detection in data mining?
- a) To identify patterns in data
 - b) To identify errors in data
 - c) To identify rare events in data
 - d) To identify relationship in data

Seat No.	
----------	--

Set **P**

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Figures drawn by pencil; ruler only indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

- Q.2 Attempt any three.** **12**
- a) Describe Data Mining and basic data mining tasks. List the main challenges and limitations of data mining?
 - b) In real-world data, tuples with missing values for some attributes are a common occurrence. Describe various methods for handling this problem.
 - c) Suppose a group of 12 sales price records has been sorted as follows: 5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215. Partition them into three bins by each of the following methods,
 - i) equal-frequency (equi-depth) partitioning
 - ii) equal-width partitioning
 - iii) Clustering
 - d) What do you mean by data reduction? Why is it used? Write names of 3 data reduction strategies.
- Q.3 Attempt any One of the following.** **08**
- a) What are the steps involved in preparing the data for classification? Describe the data classification process with a neat diagram. How does the Naive Bayesian classification work?
OR
 - b) Discuss about constraint based association rule mining with examples and state how association mining to correlation analysis is dealt with.
- Q.4 Answer the following** **08**
- Describe KDD and the steps involved in data mining when viewed as a process of knowledge discovery in detail with diagram.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Differentiate between Clustering and Classification.
 - b) Define Outlier Detection? State briefly outlier detection methods.
 - c) Compare Data mining techniques and Web mining techniques.
 - d) Explain parallel and distributed algorithms.
- Q.6 Answer any one of the following 08**
- a) What is clustering? State with a suitable diagram the classification of clustering algorithms. Explain in detail about Agglomerative and Divisive Hierarchical Clustering.
- OR**
- b) What is the definition of the support and confidence measures used in the Apriori algorithm? Give an example for Apriori with transactions and explain Apriori-gen-algorithm.
- Q.7 Answer the following 08**
- What is web mining and how does it differ from traditional data mining? Discuss the following types of web mining:
- a) Web structure mining
 - b) Web content mining
 - c) Web usage mining

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Figures drawn by pencil, ruler only indicate full marks.
 - 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is NOT a type of clustering method?

a) K-means	b) Density-based
c) Hierarchical	d) Regression
- 2) Which of the following is NOT a characteristic of hierarchical clustering?
 - a) It is a top-down approach
 - b) It creates a tree-like structure
 - c) It is computationally efficient
 - d) It is sensitive to noise and outliers
- 3) What is the minimum support threshold in the Apriori algorithm?
 - a) The minimum number of times an item must appear in the dataset for it to be considered for analysis
 - b) The minimum number of items that must be present in a transaction for it to be considered for analysis
 - c) The minimum probability that an association rule must meet to be considered valid
 - d) The minimum number of items that must be present in a transaction for it to be considered for association rule analysis
- 4) Which of the following is NOT a type of web mining?

a) Web structure mining	b) Web content mining
c) Web usage mining	d) Web security mining
- 5) How is web content mining different from traditional data mining?
 - a) Web content mining focuses on text data, while traditional data mining focuses on numerical data.
 - b) Web content mining is only applicable to the web, while traditional data mining can be applied to any data set
 - c) Web content mining requires specialized algorithms, while traditional data mining uses general.
 - d) Web content mining is more difficult to implement than traditional data mining.

- 6) Which of the following is NOT a potential application of web content mining?
- a) Sentiment analysis of online reviews
 - b) Extracting product information from e-commerce websites
 - c) Identifying trends in social media posts
 - d) Predicting stock prices based on news articles
- 7) What is the main goal of outlier detection in data mining?
- a) To identify patterns in data
 - b) To identify errors in data
 - c) To identify rare events in data
 - d) To identify relationship in data
- 8) Which of the following is NOT a step in the KDD process?
- a) Data cleaning and preprocessing
 - b) Data selection
 - c) Data transformation
 - d) Data visualization
- 9) Which of the following is NOT a potential issue in data mining related to the quality of the data?
- a) Data may be incomplete
 - b) Data may be noisy or contain errors
 - c) Data may be outdated
 - d) Data may be perfectly clean and accurate
- 10) What is the main goal of data integration in data mining?
- a) To combine data from multiple sources into a single dataset
 - b) To identify and remove duplicates in the data
 - c) To correct errors in the data
 - d) To improve the accuracy of data analysis
- 11) Market basket analysis is a technique used to identify:
- a) Trending products in a store
 - b) Strong associations between items in a shopping basket
 - c) Weak associations between items in a shopping basket
 - d) Products with the highest sales volume
- 12) Which of the following techniques is commonly used in market basket analysis?
- a) Decision trees
 - b) Neural networks
 - c) Association rule mining
 - d) K-means clustering
- 13) Which of the following is NOT a type of classification method in data mining?
- a) Decision tree
 - b) Logistic regression
 - c) Naive Bayes
 - d) Clustering
- 14) What does the "K" in K-nearest neighbors (KNN) classification stand for?
- a) The number of features in the data
 - b) The number of classes in the data
 - c) The number of nearest neighbors used to classify a data point
 - d) The number of dimensions in the data

Seat No.	
----------	--

Set **Q**

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Figures drawn by pencil; ruler only indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

- Q.2 Attempt any three.** **12**
- a) Describe Data Mining and basic data mining tasks. List the main challenges and limitations of data mining?
 - b) In real-world data, tuples with missing values for some attributes are a common occurrence. Describe various methods for handling this problem.
 - c) Suppose a group of 12 sales price records has been sorted as follows: 5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215. Partition them into three bins by each of the following methods,
 - i) equal-frequency (equi-depth) partitioning
 - ii) equal-width partitioning
 - iii) Clustering
 - d) What do you mean by data reduction? Why is it used? Write names of 3 data reduction strategies.
- Q.3 Attempt any One of the following.** **08**
- a) What are the steps involved in preparing the data for classification? Describe the data classification process with a neat diagram. How does the Naive Bayesian classification work?
OR
 - b) Discuss about constraint based association rule mining with examples and state how association mining to correlation analysis is dealt with.
- Q.4 Answer the following** **08**
- Describe KDD and the steps involved in data mining when viewed as a process of knowledge discovery in detail with diagram.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Differentiate between Clustering and Classification.
 - b) Define Outlier Detection? State briefly outlier detection methods.
 - c) Compare Data mining techniques and Web mining techniques.
 - d) Explain parallel and distributed algorithms.
- Q.6 Answer any one of the following 08**
- a) What is clustering? State with a suitable diagram the classification of clustering algorithms. Explain in detail about Agglomerative and Divisive Hierarchical Clustering.
- OR**
- b) What is the definition of the support and confidence measures used in the Apriori algorithm? Give an example for Apriori with transactions and explain Apriori-gen-algorithm.
- Q.7 Answer the following 08**
- What is web mining and how does it differ from traditional data mining? Discuss the following types of web mining:
- a) Web structure mining
 - b) Web content mining
 - c) Web usage mining

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Figures drawn by pencil, ruler only indicate full marks.
 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following is NOT a type of web mining?
 - a) Web structure mining
 - b) Web content mining
 - c) Web usage mining
 - d) Web security mining
- 2) How is web content mining different from traditional data mining?
 - a) Web content mining focuses on text data, while traditional data mining focuses on numerical data.
 - b) Web content mining is only applicable to the web, while traditional data mining can be applied to any data set
 - c) Web content mining requires specialized algorithms, while traditional data mining uses general.
 - d) Web content mining is more difficult to implement than traditional data mining.
- 3) Which of the following is NOT a potential application of web content mining?
 - a) Sentiment analysis of online reviews
 - b) Extracting product information from e-commerce websites
 - c) Identifying trends in social media posts
 - d) Predicting stock prices based on news articles
- 4) What is the main goal of outlier detection in data mining?
 - a) To identify patterns in data
 - b) To identify errors in data
 - c) To identify rare events in data
 - d) To identify relationship in data
- 5) Which of the following is NOT a step in the KDD process?
 - a) Data cleaning and preprocessing
 - b) Data selection
 - c) Data transformation
 - d) Data visualization

- 6) Which of the following is NOT a potential issue in data mining related to the quality of the data?
- a) Data may be incomplete
 - b) Data may be noisy or contain errors
 - c) Data may be outdated
 - d) Data may be perfectly clean and accurate
- 7) What is the main goal of data integration in data mining?
- a) To combine data from multiple sources into a single dataset
 - b) To identify and remove duplicates in the data
 - c) To correct errors in the data
 - d) To improve the accuracy of data analysis
- 8) Market basket analysis is a technique used to identify:
- a) Trending products in a store
 - b) Strong associations between items in a shopping basket
 - c) Weak associations between items in a shopping basket
 - d) Products with the highest sales volume
- 9) Which of the following techniques is commonly used in market basket analysis?
- a) Decision trees
 - b) Neural networks
 - c) Association rule mining
 - d) K-means clustering
- 10) Which of the following is NOT a type of classification method in data mining?
- a) Decision tree
 - b) Logistic regression
 - c) Naive Bayes
 - d) Clustering
- 11) What does the "K" in K-nearest neighbors (KNN) classification stand for?
- a) The number of features in the data
 - b) The number of classes in the data
 - c) The number of nearest neighbors used to classify a data point
 - d) The number of dimensions in the data
- 12) Which of the following is NOT a type of clustering method?
- a) K-means
 - b) Density-based
 - c) Hierarchical
 - d) Regression
- 13) Which of the following is NOT a characteristic of hierarchical clustering?
- a) It is a top-down approach
 - b) It creates a tree-like structure
 - c) It is computationally efficient
 - d) It is sensitive to noise and outliers
- 14) What is the minimum support threshold in the Apriori algorithm?
- a) The minimum number of times an item must appear in the dataset for it to be considered for analysis
 - b) The minimum number of items that must be present in a transaction for it to be considered for analysis
 - c) The minimum probability that an association rule must meet to be considered valid
 - d) The minimum number of items that must be present in a transaction for it to be considered for association rule analysis

Seat No.	
----------	--

Set **R**

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Figures drawn by pencil; ruler only indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any three. **12**

- a) Describe Data Mining and basic data mining tasks. List the main challenges and limitations of data mining?
- b) In real-world data, tuples with missing values for some attributes are a common occurrence. Describe various methods for handling this problem.
- c) Suppose a group of 12 sales price records has been sorted as follows:
 5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215.
 Partition them into three bins by each of the following methods,
 - i) equal-frequency (equi-depth) partitioning
 - ii) equal-width partitioning
 - iii) Clustering
- d) What do you mean by data reduction? Why is it used? Write names of 3 data reduction strategies.

Q.3 Attempt any One of the following. **08**

- a) What are the steps involved in preparing the data for classification? Describe the data classification process with a neat diagram. How does the Naive Bayesian classification work?
- OR**
- b) Discuss about constraint based association rule mining with examples and state how association mining to correlation analysis is dealt with.

Q.4 Answer the following **08**

Describe KDD and the steps involved in data mining when viewed as a process of knowledge discovery in detail with diagram.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Differentiate between Clustering and Classification.
 - b) Define Outlier Detection? State briefly outlier detection methods.
 - c) Compare Data mining techniques and Web mining techniques.
 - d) Explain parallel and distributed algorithms.
- Q.6 Answer any one of the following 08**
- a) What is clustering? State with a suitable diagram the classification of clustering algorithms. Explain in detail about Agglomerative and Divisive Hierarchical Clustering.
- OR**
- b) What is the definition of the support and confidence measures used in the Apriori algorithm? Give an example for Apriori with transactions and explain Apriori-gen-algorithm.
- Q.7 Answer the following 08**
- What is web mining and how does it differ from traditional data mining? Discuss the following types of web mining:
- a) Web structure mining
 - b) Web content mining
 - c) Web usage mining

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Figures drawn by pencil, ruler only indicate full marks.
 - 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is NOT a type of classification method in data mining?

a) Decision tree	b) Logistic regression
c) Naive Bayes	d) Clustering
- 2) What does the "K" in K-nearest neighbors (KNN) classification stand for?
 - a) The number of features in the data
 - b) The number of classes in the data
 - c) The number of nearest neighbors used to classify a data point
 - d) The number of dimensions in the data
- 3) Which of the following is NOT a type of clustering method?

a) K-means	b) Density-based
c) Hierarchical	d) Regression
- 4) Which of the following is NOT a characteristic of hierarchical clustering?
 - a) It is a top-down approach
 - b) It creates a tree-like structure
 - c) It is computationally efficient
 - d) It is sensitive to noise and outliers
- 5) What is the minimum support threshold in the Apriori algorithm?
 - a) The minimum number of times an item must appear in the dataset for it to be considered for analysis
 - b) The minimum number of items that must be present in a transaction for it to be considered for analysis
 - c) The minimum probability that an association rule must meet to be considered valid
 - d) The minimum number of items that must be present in a transaction for it to be considered for association rule analysis
- 6) Which of the following is NOT a type of web mining?

a) Web structure mining	b) Web content mining
c) Web usage mining	d) Web security mining

- 7) How is web content mining different from traditional data mining?
- a) Web content mining focuses on text data, while traditional data mining focuses on numerical data.
 - b) Web content mining is only applicable to the web, while traditional data mining can be applied to any data set
 - c) Web content mining requires specialized algorithms, while traditional data mining uses general.
 - d) Web content mining is more difficult to implement than traditional data mining.
- 8) Which of the following is NOT a potential application of web content mining?
- a) Sentiment analysis of online reviews
 - b) Extracting product information from e-commerce websites
 - c) Identifying trends in social media posts
 - d) Predicting stock prices based on news articles
- 9) What is the main goal of outlier detection in data mining?
- a) To identify patterns in data
 - b) To identify errors in data
 - c) To identify rare events in data
 - d) To identify relationship in data
- 10) Which of the following is NOT a step in the KDD process?
- a) Data cleaning and preprocessing
 - b) Data selection
 - c) Data transformation
 - d) Data visualization
- 11) Which of the following is NOT a potential issue in data mining related to the quality of the data?
- a) Data may be incomplete
 - b) Data may be noisy or contain errors
 - c) Data may be outdated
 - d) Data may be perfectly clean and accurate
- 12) What is the main goal of data integration in data mining?
- a) To combine data from multiple sources into a single dataset
 - b) To identify and remove duplicates in the data
 - c) To correct errors in the data
 - d) To improve the accuracy of data analysis
- 13) Market basket analysis is a technique used to identify:
- a) Trending products in a store
 - b) Strong associations between items in a shopping basket
 - c) Weak associations between items in a shopping basket
 - d) Products with the highest sales volume
- 14) Which of the following techniques is commonly used in market basket analysis?
- a) Decision trees
 - b) Neural networks
 - c) Association rule mining
 - d) K-means clustering

Seat No.	
----------	--

Set **S**

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Data Mining (197046707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Figures drawn by pencil; ruler only indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any three. **12**

- a) Describe Data Mining and basic data mining tasks. List the main challenges and limitations of data mining?
- b) In real-world data, tuples with missing values for some attributes are a common occurrence. Describe various methods for handling this problem.
- c) Suppose a group of 12 sales price records has been sorted as follows:
 5, 10, 11, 13, 15, 35, 50, 55, 72, 92, 204, 215.
 Partition them into three bins by each of the following methods,
 - i) equal-frequency (equi-depth) partitioning
 - ii) equal-width partitioning
 - iii) Clustering
- d) What do you mean by data reduction? Why is it used? Write names of 3 data reduction strategies.

Q.3 Attempt any One of the following. **08**

- a) What are the steps involved in preparing the data for classification?
 Describe the data classification process with a neat diagram. How does the Naive Bayesian classification work?
- OR**
- b) Discuss about constraint based association rule mining with examples and state how association mining to correlation analysis is dealt with.

Q.4 Answer the following **08**

Describe KDD and the steps involved in data mining when viewed as a process of knowledge discovery in detail with diagram.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Differentiate between Clustering and Classification.
 - b) Define Outlier Detection? State briefly outlier detection methods.
 - c) Compare Data mining techniques and Web mining techniques.
 - d) Explain parallel and distributed algorithms.
- Q.6 Answer any one of the following 08**
- a) What is clustering? State with a suitable diagram the classification of clustering algorithms. Explain in detail about Agglomerative and Divisive Hierarchical Clustering.
- OR**
- b) What is the definition of the support and confidence measures used in the Apriori algorithm? Give an example for Apriori with transactions and explain Apriori-gen-algorithm.
- Q.7 Answer the following 08**
- What is web mining and how does it differ from traditional data mining? Discuss the following types of web mining:
- a) Web structure mining
 - b) Web content mining
 - c) Web usage mining

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.
 - 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Caesar Cipher is an example of _____.

a) Poly-alphabetic Cipher	b) Mono-alphabetic Cipher
c) Multi-alphabetic Cipher	d) Bi-alphabetic Cipher
- 2) Select the right option _____.

I) Substitution cipher	i) Vigenere cipher
II) Transposition cipher	ii) Caesar cipher
III) Multiple letter encryption cipher	iii) Rail fence
IV) Poly alphabetic cipher	iv) Playfair cipher
a) I-i, II-iii, III-ii, IV-iv	b) I-ii, II-iii, III-iv, IV-i
c) I-ii, II-iv, III-iii, IV-i	d) I-i, II-ii, III-iii, IV-iv
- 3) Which legislation in India specifically addresses cybercrime and information security?
 - a) IPC (Indian Penal Code)
 - b) ITA 2000 (Information Technology Act, 2000)
 - c) CRPC (Code of Criminal Procedure)
 - d) FEMA (Foreign Exchange Management Act)
- 4) What is emphasized as the "Survival Mantra for the Netizens" in the Cybercrime Era?

a) Offline Communication	b) Digital Literacy
c) Ignoring Security Measures	d) Dependence on Government
- 5) What role do Botnets play in the context of cybercrime?
 - a) Cybercrime detection
 - b) Cyber security education
 - c) Fueling and supporting cybercrime activities
 - d) Government surveillance

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

- Q.2 Attempt any three. 12**
- a) Describe Viruses. How do viruses get disseminated? Explain with diagrams.
 - b) Define cyber stalking and outline the different categories of stalkers in this digital context. Additionally, elaborate on the mechanisms and processes involved in the act of stalking within the online environment.
 - c) Describe with diagram the Model for Network Security.
 - d) Describe types of cyber-crimes against an individual in detail.
- Q.3 Attempt any One of the following. 08**
- a) Differentiate the following:
 - i) Substitution and Transposition techniques.
 - ii) Symmetric and Asymmetric Encryption Techniques

OR
 - b) In the context of cybercrimes, define Botnets and explain how these networks function as a critical element, detailing their specific role as the fuel for various types of cybercriminal activities.
- Q.4 Answer the following 08**
- Describe with diagram the Feistel Cipher structure and the actual parameters, design choices that determine the algorithm of Feistel cipher.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Discuss the role of digital signatures in The Indian IT Act. How do they contribute to ensuring security in digital transactions and communications
 - b) Describe with punishments the changes made to the Section 66C, 66D, 66E, 66F of the Indian IT Act 2000.
 - c) Describe cybercrimes rooted using:
 - i) SQL Injection
 - ii) DOS attack
 - d) Differentiate Proxy Server and an Anonymizer.

Q.6 Answer any one of the following

- a) Investigate the impact of cloud computing on the landscape of cyber offenses. How does the adoption of cloud technologies introduce new challenges and opportunities for cybercriminals? Discuss the security implications and measures organizations can take to enhance cloud computing security.

OR

- b) Examine the security challenges posed by mobile devices in the era of wireless computing. What are the major vulnerabilities, and how can organizations address these challenges to ensure the security of sensitive information?

Q.7 Answer the following

Describe SQL Injection and list the steps for SQL Injection attack. How to prevent SQL Injection Attack.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.
 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the primary focus of the module "Proxy Servers and Anonymizers"?
 - a) Cyber security Policies
 - b) Online Privacy Tools
 - c) Social Media Platforms
 - d) Data Encryption Techniques
- 2) What is the term for unauthorized access to and manipulation of information on mobile phones?
 - a) Mobile Phishing
 - b) SIM Card Hacking
 - c) Mobile Hijacking
 - d) Mobile Attacks
- 3) In the context of organizational security policies for mobile computing, what is the focus of "Organizational Security Policies and Measures in Mobile Computing Era?
 - a) Limiting Employee Mobility
 - b) Enhancing Device Speed
 - c) Mitigating Security Risks
 - d) Reducing Mobile Device Adoption
- 4) _____ is the term for attacks that target mobile/cell phones to gain unauthorized access or extract sensitive information.
 - a) Mobile Phreaking
 - b) Phone Cloning
 - c) SIM Card Skimming
 - d) Mobile Exploitation
- 5) In the Indian context, what is emphasized as the need for Cyber laws?
 - a) Technological Advancements
 - b) Economic Development
 - c) Social Media Influence
 - d) Legal Enforcement
- 6) A _____ takes place when one entity pretends to be different entity.
 - a) Replay
 - b) Modification of messages
 - c) Denial of service
 - d) Masquerade

- 7) Which legislation in India specifically addresses Cybercrimes and Cyber security?
- IPC (Indian Penal Code)
 - ITA 2000 (Information Technology Act, 2000)
 - CRPC (Code of Criminal Procedure)
 - FEMA (Foreign Exchange Management Act)
- 8) Caesar Cipher is an example of _____.
- Poly-alphabetic Cipher
 - Mono-alphabetic Cipher
 - Multi-alphabetic Cipher
 - Bi-alphabetic Cipher
- 9) Select the right option _____.
- | | |
|----------------------------------------|---------------------|
| I) Substitution cipher | i) Vigenere cipher |
| II) Transposition cipher | ii) Caesar cipher |
| III) Multiple letter encryption cipher | iii) Rail fence |
| IV) Poly alphabetic cipher | iv) Playfair cipher |
- I-i, II-iii, III-ii, IV-iv
 - I-ii, II-iii, III-iv, IV-i
 - I-ii, II-iv, III-iii, IV-i
 - I-i, II-ii, III-iii, IV-iv
- 10) Which legislation in India specifically addresses cybercrime and information security?
- IPC (Indian Penal Code)
 - ITA 2000 (Information Technology Act, 2000)
 - CRPC (Code of Criminal Procedure)
 - FEMA (Foreign Exchange Management Act)
- 11) What is emphasized as the "Survival Mantra for the Netizens" in the Cybercrime Era?
- Offline Communication
 - Digital Literacy
 - Ignoring Security Measures
 - Dependence on Government
- 12) What role do Botnets play in the context of cybercrime?
- Cybercrime detection
 - Cyber security education
 - Fueling and supporting cybercrime activities
 - Government surveillance
- 13) What is the term used to describe targeted harassment through online platforms in the context of cybercrimes?
- Cyber Espionage
 - Cyber Bullying
 - Cyber Extortion
 - Cyber Vandalism
- 14) In Cyber security, what does the term "Social Cyber Stalking" specifically involve?
- Hacking Social Media Accounts
 - Social Engineering Attacks
 - Cyber security Conferences
 - Online Gaming Strategies

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

- Q.2 Attempt any three. 12**
 a) Describe Viruses. How do viruses get disseminated? Explain with diagrams.
 b) Define cyber stalking and outline the different categories of stalkers in this digital context. Additionally, elaborate on the mechanisms and processes involved in the act of stalking within the online environment.
 c) Describe with diagram the Model for Network Security.
 d) Describe types of cyber-crimes against an individual in detail.
- Q.3 Attempt any One of the following. 08**
 a) Differentiate the following:
 i) Substitution and Transposition techniques.
 ii) Symmetric and Asymmetric Encryption Techniques
OR
 b) In the context of cybercrimes, define Botnets and explain how these networks function as a critical element, detailing their specific role as the fuel for various types of cybercriminal activities.
- Q.4 Answer the following 08**
 Describe with diagram the Feistel Cipher structure and the actual parameters, design choices that determine the algorithm of Feistel cipher.

Section – II

- Q.5 Attempt any three of the following. 12**
 a) Discuss the role of digital signatures in The Indian IT Act. How do they contribute to ensuring security in digital transactions and communications
 b) Describe with punishments the changes made to the Section 66C, 66D, 66E, 66F of the Indian IT Act 2000.
 c) Describe cybercrimes rooted using:
 i) SQL Injection
 ii) DOS attack
 d) Differentiate Proxy Server and an Anonymizer.

Q.6 Answer any one of the following

- a) Investigate the impact of cloud computing on the landscape of cyber offenses. How does the adoption of cloud technologies introduce new challenges and opportunities for cybercriminals? Discuss the security implications and measures organizations can take to enhance cloud computing security.

OR

- b) Examine the security challenges posed by mobile devices in the era of wireless computing. What are the major vulnerabilities, and how can organizations address these challenges to ensure the security of sensitive information?

Q.7 Answer the following

Describe SQL Injection and list the steps for SQL Injection attack. How to prevent SQL Injection Attack.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.
 - 5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is the term for attacks that target mobile/cell phones to gain unauthorized access or extract sensitive information.

a) Mobile Phreaking	b) Phone Cloning
c) SIM Card Skimming	d) Mobile Exploitation
- 2) In the Indian context, what is emphasized as the need for Cyber laws?

a) Technological Advancements	b) Economic Development
c) Social Media Influence	d) Legal Enforcement
- 3) A _____ takes place when one entity pretends to be different entity.

a) Replay	b) Modification of messages
c) Denial of service	d) Masquerade
- 4) Which legislation in India specifically addresses Cybercrimes and Cyber security?

a) IPC (Indian Penal Code)	b) ITA 2000 (Information Technology Act, 2000)
c) CRPC (Code of Criminal Procedure)	d) FEMA (Foreign Exchange Management Act)
- 5) Caesar Cipher is an example of _____.

a) Poly-alphabetic Cipher	b) Mono-alphabetic Cipher
c) Multi-alphabetic Cipher	d) Bi-alphabetic Cipher
- 6) Select the right option _____.

I) Substitution cipher	i) Vigenere cipher
II) Transposition cipher	ii) Caesar cipher
III) Multiple letter encryption cipher	iii) Rail fence
IV) Poly alphabetic cipher	iv) Playfair cipher
a) I-i, II-iii, III-ii, IV-iv	b) I-ii, II-iii, III-iv, IV-i
c) I-ii, II-iv, III-iii, IV-i	d) I-i, II-ii, III-iii, IV-iv

- 7) Which legislation in India specifically addresses cybercrime and information security?
- a) IPC (Indian Penal Code)
 - b) ITA 2000 (Information Technology Act, 2000)
 - c) CRPC (Code of Criminal Procedure)
 - d) FEMA (Foreign Exchange Management Act)
- 8) What is emphasized as the "Survival Mantra for the Netizens" in the Cybercrime Era?
- a) Offline Communication
 - b) Digital Literacy
 - c) Ignoring Security Measures
 - d) Dependence on Government
- 9) What role do Botnets play in the context of cybercrime?
- a) Cybercrime detection
 - b) Cyber security education
 - c) Fueling and supporting cybercrime activities
 - d) Government surveillance
- 10) What is the term used to describe targeted harassment through online platforms in the context of cybercrimes?
- a) Cyber Espionage
 - b) Cyber Bullying
 - c) Cyber Extortion
 - d) Cyber Vandalism
- 11) In Cyber security, what does the term "Social Cyber Stalking" specifically involve?
- a) Hacking Social Media Accounts
 - b) Social Engineering Attacks
 - c) Cyber security Conferences
 - d) Online Gaming Strategies
- 12) What is the primary focus of the module "Proxy Servers and Anonymizers"?
- a) Cyber security Policies
 - b) Online Privacy Tools
 - c) Social Media Platforms
 - d) Data Encryption Techniques
- 13) What is the term for unauthorized access to and manipulation of information on mobile phones?
- a) Mobile Phishing
 - b) SIM Card Hacking
 - c) Mobile Hijacking
 - d) Mobile Attacks
- 14) In the context of organizational security policies for mobile computing, what is the focus of "Organizational Security Policies and Measures in Mobile Computing Era?"
- a) Limiting Employee Mobility
 - b) Enhancing Device Speed
 - c) Mitigating Security Risks
 - d) Reducing Mobile Device Adoption

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Do not use pen to draw and label the diagrams.

Section – I

- Q.2 Attempt any three. 12**
- a) Describe Viruses. How do viruses get disseminated? Explain with diagrams.
 - b) Define cyber stalking and outline the different categories of stalkers in this digital context. Additionally, elaborate on the mechanisms and processes involved in the act of stalking within the online environment.
 - c) Describe with diagram the Model for Network Security.
 - d) Describe types of cyber-crimes against an individual in detail.
- Q.3 Attempt any One of the following. 08**
- a) Differentiate the following:
 - i) Substitution and Transposition techniques.
 - ii) Symmetric and Asymmetric Encryption Techniques

OR
 - b) In the context of cybercrimes, define Botnets and explain how these networks function as a critical element, detailing their specific role as the fuel for various types of cybercriminal activities.
- Q.4 Answer the following 08**
- Describe with diagram the Feistel Cipher structure and the actual parameters, design choices that determine the algorithm of Feistel cipher.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Discuss the role of digital signatures in The Indian IT Act. How do they contribute to ensuring security in digital transactions and communications
 - b) Describe with punishments the changes made to the Section 66C, 66D, 66E, 66F of the Indian IT Act 2000.
 - c) Describe cybercrimes rooted using:
 - i) SQL Injection
 - ii) DOS attack
 - d) Differentiate Proxy Server and an Anonymizer.

Q.6 Answer any one of the following

- a) Investigate the impact of cloud computing on the landscape of cyber offenses. How does the adoption of cloud technologies introduce new challenges and opportunities for cybercriminals? Discuss the security implications and measures organizations can take to enhance cloud computing security.

OR

- b) Examine the security challenges posed by mobile devices in the era of wireless computing. What are the major vulnerabilities, and how can organizations address these challenges to ensure the security of sensitive information?

Q.7 Answer the following

Describe SQL Injection and list the steps for SQL Injection attack. How to prevent SQL Injection Attack.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)**

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.
5) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the term used to describe targeted harassment through online platforms in the context of cybercrimes?
 - a) Cyber Espionage
 - b) Cyber Bullying
 - c) Cyber Extortion
 - d) Cyber Vandalism
- 2) In Cyber security, what does the term "Social Cyber Stalking" specifically involve?
 - a) Hacking Social Media Accounts
 - b) Social Engineering Attacks
 - c) Cyber security Conferences
 - d) Online Gaming Strategies
- 3) What is the primary focus of the module "Proxy Servers and Anonymizers"?
 - a) Cyber security Policies
 - b) Online Privacy Tools
 - c) Social Media Platforms
 - d) Data Encryption Techniques
- 4) What is the term for unauthorized access to and manipulation of information on mobile phones?
 - a) Mobile Phishing
 - b) SIM Card Hacking
 - c) Mobile Hijacking
 - d) Mobile Attacks
- 5) In the context of organizational security policies for mobile computing, what is the focus of "Organizational Security Policies and Measures in Mobile Computing Era?
 - a) Limiting Employee Mobility
 - b) Enhancing Device Speed
 - c) Mitigating Security Risks
 - d) Reducing Mobile Device Adoption
- 6) _____ is the term for attacks that target mobile/cell phones to gain unauthorized access or extract sensitive information.
 - a) Mobile Phreaking
 - b) Phone Cloning
 - c) SIM Card Skimming
 - d) Mobile Exploitation

- 7) In the Indian context, what is emphasized as the need for Cyber laws?
- Technological Advancements
 - Economic Development
 - Social Media Influence
 - Legal Enforcement
- 8) A _____ takes place when one entity pretends to be different entity.
- Replay
 - Modification of messages
 - Denial of service
 - Masquerade
- 9) Which legislation in India specifically addresses Cybercrimes and Cyber security?
- IPC (Indian Penal Code)
 - ITA 2000 (Information Technology Act, 2000)
 - CRPC (Code of Criminal Procedure)
 - FEMA (Foreign Exchange Management Act)
- 10) Caesar Cipher is an example of _____.
- Poly-alphabetic Cipher
 - Mono-alphabetic Cipher
 - Multi-alphabetic Cipher
 - Bi-alphabetic Cipher
- 11) Select the right option _____.
- | | |
|----------------------------------------|---------------------|
| I) Substitution cipher | i) Vigenere cipher |
| II) Transposition cipher | ii) Caesar cipher |
| III) Multiple letter encryption cipher | iii) Rail fence |
| IV) Poly alphabetic cipher | iv) Playfair cipher |
- I-i, II-iii, III-ii, IV-iv
 - I-ii, II-iii, III-iv, IV-i
 - I-ii, II-iv, III-iii, IV-i
 - I-i, II-ii, III-iii, IV-iv
- 12) Which legislation in India specifically addresses cybercrime and information security?
- IPC (Indian Penal Code)
 - ITA 2000 (Information Technology Act, 2000)
 - CRPC (Code of Criminal Procedure)
 - FEMA (Foreign Exchange Management Act)
- 13) What is emphasized as the "Survival Mantra for the Netizens" in the Cybercrime Era?
- Offline Communication
 - Digital Literacy
 - Ignoring Security Measures
 - Dependence on Government
- 14) What role do Botnets play in the context of cybercrime?
- Cybercrime detection
 - Cyber security education
 - Fueling and supporting cybercrime activities
 - Government surveillance

Seat No.	
----------	--

Set	S
-----	---

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Cyber Security (BTN05701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

- Q.2 Attempt any three. 12**
- a) Describe Viruses. How do viruses get disseminated? Explain with diagrams.
 - b) Define cyber stalking and outline the different categories of stalkers in this digital context. Additionally, elaborate on the mechanisms and processes involved in the act of stalking within the online environment.
 - c) Describe with diagram the Model for Network Security.
 - d) Describe types of cyber-crimes against an individual in detail.

- Q.3 Attempt any One of the following. 08**
- a) Differentiate the following:
 - i) Substitution and Transposition techniques.
 - ii) Symmetric and Asymmetric Encryption Techniques

OR

- b) In the context of cybercrimes, define Botnets and explain how these networks function as a critical element, detailing their specific role as the fuel for various types of cybercriminal activities.

- Q.4 Answer the following 08**
- Describe with diagram the Feistel Cipher structure and the actual parameters, design choices that determine the algorithm of Feistel cipher.

Section – II

- Q.5 Attempt any three of the following. 12**
- a) Discuss the role of digital signatures in The Indian IT Act. How do they contribute to ensuring security in digital transactions and communications
 - b) Describe with punishments the changes made to the Section 66C, 66D, 66E, 66F of the Indian IT Act 2000.
 - c) Describe cybercrimes rooted using:
 - i) SQL Injection
 - ii) DOS attack
 - d) Differentiate Proxy Server and an Anonymizer.

Q.6 Answer any one of the following

- a) Investigate the impact of cloud computing on the landscape of cyber offenses. How does the adoption of cloud technologies introduce new challenges and opportunities for cybercriminals? Discuss the security implications and measures organizations can take to enhance cloud computing security.

OR

- b) Examine the security challenges posed by mobile devices in the era of wireless computing. What are the major vulnerabilities, and how can organizations address these challenges to ensure the security of sensitive information?

Q.7 Answer the following

Describe SQL Injection and list the steps for SQL Injection attack. How to prevent SQL Injection Attack.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is set of self-contained services that communicate with each other to create a working software application.
 - a) A service-based architecture
 - b) A service-oriented architecture
 - c) A service-dependent architecture
 - d) All of the above

- 2) _____ highlights specific activities in the business where competitive strategies can best be applied.
 - a) The chain value model
 - b) The value chain model
 - c) both a and b
 - d) none of the above

- 3) _____ is a computerized system that performs and records the daily routine transactions necessary to conduct business.
 - a) Management Information System
 - b) Decision Support System
 - c) Executive Support System
 - d) Transaction Processing System

- 4) _____ can be used to analyze the direct and indirect costs to help firms determine the actual cost of specific technology implementations.
 - a) Competitive Forces Model
 - b) Total Cost of Ownership Model
 - c) both a and b
 - d) none of these

- 5) The ability to offer individually tailored products or services using the same production resources as mass production is called _____.
 - a) Mass customization
 - b) Product customization
 - c) both a and b
 - d) none of the above

- 6) _____ refer to the set of logically related tasks and behavior of an organization.
 - a) Key processes
 - b) Work processes
 - c) Business processes
 - d) Source processes

- 7) _____ exists when one party in a transaction has more information that is important for the transaction than the other party.
- a) An information symmetry b) An information asymmetry
c) An information equality d) An information inequality
- 8) The most widely used model for understanding competitive advantage is _____.
- a) Michael Porter's model b) Competitive forces model
c) Both a and b d) none of the above
- 9) Information systems transform raw data into useful information through three basic activities: _____.
- a) input, processing, and output
b) leadership, strategy, behavior
c) collect, store, disseminate
d) All of the above
- 10) In _____, websites send visitors to other websites in return for a referral fee of revenue from any resulting sales.
- a) Sales Revenue Model b) Subscription Revenue Model
c) Freemium Revenue Model d) Affiliate Revenue Model
- 11) According to agency theory, the firm is viewed as a _____ among self-interested individuals rather than as a unified, profit maximizing entity.
- a) "nexus of agents" b) "nexus of contracts"
c) both a and b d) none of the above
- 12) _____ systems coordinate the business processes surrounding the firm's customers.
- a) Supply chain management
b) Customer relationship management
c) Knowledge management
d) All of the above
- 13) In a phenomenon called _____, some argue that large numbers of people can make better decisions about a wide range of topics than a single person.
- a) wisdom of crowds b) crowdsourcing
c) both a and b d) none of the above
- 14) Information systems are key instruments for _____, helping managers identify external changes that might require an organizational response.
- a) Environmental scanning b) Organizational scanning
c) both a and b d) none of the above

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Three: **12**

- a) Which features of organizations do managers need to know about to build and use information systems successfully?
- b) Why are systems for collaboration and social business so important? What technologies do they use?
- c) What is the impact of information systems on organizations?
- d) What academic disciplines are used to study information systems, and how does each contribute to an understanding of information systems?

Q.3 Solve any Two: **16**

- a) How are information systems transforming business, and why are they essential for running and managing a business today?
- b) What are the challenges posed by strategic information systems, and how should they be addressed?
- c) What ethical, social, and political issues are raised by information systems?

Section – II

Q.4 Solve any Three: **12**

- a) What are the challenges of managing IT infrastructure and management solutions?
- b) What issues must be addressed when building an e-commerce presence?
- c) What are the problems of managing data resources in a traditional file environment?
- d) What are the components of an organizational framework for security and control?

Q.5 Solve any Two: **16**

- a) What is the role of m-commerce in business, and what are the most important m-commerce applications?
- b) What is IT infrastructure, and what are the stages and drivers of IT infrastructure evolution?
- c) What are the most important tools and technologies for safeguarding information resources?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The most widely used model for understanding competitive advantage is _____.
 a) Michael Porter's model b) Competitive forces model
 c) Both a and b d) none of the above
- 2) Information systems transform raw data into useful information through three basic activities: _____.
 a) input, processing, and output
 b) leadership, strategy, behavior
 c) collect, store, disseminate
 d) All of the above
- 3) In _____, websites send visitors to other websites in return for a referral fee of revenue from any resulting sales.
 a) Sales Revenue Model b) Subscription Revenue Model
 c) Freemium Revenue Model d) Affiliate Revenue Model
- 4) According to agency theory, the firm is viewed as a _____ among self-interested individuals rather than as a unified, profit maximizing entity.
 a) "nexus of agents" b) "nexus of contracts"
 c) both a and b d) none of the above
- 5) _____ systems coordinate the business processes surrounding the firm's customers.
 a) Supply chain management
 b) Customer relationship management
 c) Knowledge management
 d) All of the above
- 6) In a phenomenon called _____, some argue that large numbers of people can make better decisions about a wide range of topics than a single person.
 a) wisdom of crowds b) crowdsourcing
 c) both a and b d) none of the above

- 7) Information systems are key instruments for _____, helping managers identify external changes that might require an organizational response.
- a) Environmental scanning
 - b) Organizational scanning
 - c) both a and b
 - d) none of the above
- 8) _____ is set of self-contained services that communicate with each other to create a working software application.
- a) A service-based architecture
 - b) A service-oriented architecture
 - c) A service-dependent architecture
 - d) All of the above
- 9) _____ highlights specific activities in the business where competitive strategies can best be applied.
- a) The chain value model
 - b) The value chain model
 - c) both a and b
 - d) none of the above
- 10) _____ is a computerized system that performs and records the daily routine transactions necessary to conduct business.
- a) Management Information System
 - b) Decision Support System
 - c) Executive Support System
 - d) Transaction Processing System
- 11) _____ can be used to analyze the direct and indirect costs to help firms determine the actual cost of specific technology implementations.
- a) Competitive Forces Model
 - b) Total Cost of Ownership Model
 - c) both a and b
 - d) none of these
- 12) The ability to offer individually tailored products or services using the same production resources as mass production is called _____.
- a) Mass customization
 - b) Product customization
 - c) both a and b
 - d) none of the above
- 13) _____ refer to the set of logically related tasks and behavior of an organization.
- a) Key processes
 - b) Work processes
 - c) Business processes
 - d) Source processes
- 14) _____ exists when one party in a transaction has more information that is important for the transaction than the other party.
- a) An information symmetry
 - b) An information asymmetry
 - c) An information equality
 - d) An information inequality

Seat No.	
----------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three:** **12**
- a) Which features of organizations do managers need to know about to build and use information systems successfully?
 - b) Why are systems for collaboration and social business so important? What technologies do they use?
 - c) What is the impact of information systems on organizations?
 - d) What academic disciplines are used to study information systems, and how does each contribute to an understanding of information systems?

- Q.3 Solve any Two:** **16**
- a) How are information systems transforming business, and why are they essential for running and managing a business today?
 - b) What are the challenges posed by strategic information systems, and how should they be addressed?
 - c) What ethical, social, and political issues are raised by information systems?

Section – II

- Q.4 Solve any Three:** **12**
- a) What are the challenges of managing IT infrastructure and management solutions?
 - b) What issues must be addressed when building an e-commerce presence?
 - c) What are the problems of managing data resources in a traditional file environment?
 - d) What are the components of an organizational framework for security and control?

- Q.5 Solve any Two:** **16**
- a) What is the role of m-commerce in business, and what are the most important m-commerce applications?
 - b) What is IT infrastructure, and what are the stages and drivers of IT infrastructure evolution?
 - c) What are the most important tools and technologies for safeguarding information resources?

- 7) _____ is a computerized system that performs and records the daily routine transactions necessary to conduct business.
- a) Management Information System
 - b) Decision Support System
 - c) Executive Support System
 - d) Transaction Processing System
- 8) _____ can be used to analyze the direct and indirect costs to help firms determine the actual cost of specific technology implementations.
- a) Competitive Forces Model
 - b) Total Cost of Ownership Model
 - c) both a and b
 - d) none of these
- 9) The ability to offer individually tailored products or services using the same production resources as mass production is called _____.
- a) Mass customization
 - b) Product customization
 - c) both a and b
 - d) none of the above
- 10) _____ refer to the set of logically related tasks and behavior of an organization.
- a) Key processes
 - b) Work processes
 - c) Business processes
 - d) Source processes
- 11) _____ exists when one party in a transaction has more information that is important for the transaction than the other party.
- a) An information symmetry
 - b) An information asymmetry
 - c) An information equality
 - d) An information inequality
- 12) The most widely used model for understanding competitive advantage is _____.
- a) Michael Porter's model
 - b) Competitive forces model
 - c) Both a and b
 - d) none of the above
- 13) Information systems transform raw data into useful information through three basic activities: _____.
- a) input, processing, and output
 - b) leadership, strategy, behavior
 - c) collect, store, disseminate
 - d) All of the above
- 14) In _____, websites send visitors to other websites in return for a referral fee of revenue from any resulting sales.
- a) Sales Revenue Model
 - b) Subscription Revenue Model
 - c) Freemium Revenue Model
 - d) Affiliate Revenue Model

Seat No.	
-------------	--

Set

R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Three:** **12**
- a) Which features of organizations do managers need to know about to build and use information systems successfully?
 - b) Why are systems for collaboration and social business so important? What technologies do they use?
 - c) What is the impact of information systems on organizations?
 - d) What academic disciplines are used to study information systems, and how does each contribute to an understanding of information systems?

- Q.3 Solve any Two:** **16**
- a) How are information systems transforming business, and why are they essential for running and managing a business today?
 - b) What are the challenges posed by strategic information systems, and how should they be addressed?
 - c) What ethical, social, and political issues are raised by information systems?

Section – II

- Q.4 Solve any Three:** **12**
- a) What are the challenges of managing IT infrastructure and management solutions?
 - b) What issues must be addressed when building an e-commerce presence?
 - c) What are the problems of managing data resources in a traditional file environment?
 - d) What are the components of an organizational framework for security and control?

- Q.5 Solve any Two:** **16**
- a) What is the role of m-commerce in business, and what are the most important m-commerce applications?
 - b) What is IT infrastructure, and what are the stages and drivers of IT infrastructure evolution?
 - c) What are the most important tools and technologies for safeguarding information resources?

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ refer to the set of logically related tasks and behavior of an organization.
 - a) Key processes
 - b) Work processes
 - c) Business processes
 - d) Source processes
- 2) _____ exists when one party in a transaction has more information that is important for the transaction than the other party.
 - a) An information symmetry
 - b) An information asymmetry
 - c) An information equality
 - d) An information inequality
- 3) The most widely used model for understanding competitive advantage is _____.
 - a) Michael Porter's model
 - b) Competitive forces model
 - c) Both a and b
 - d) none of the above
- 4) Information systems transform raw data into useful information through three basic activities: _____.
 - a) input, processing, and output
 - b) leadership, strategy, behavior
 - c) collect, store, disseminate
 - d) All of the above
- 5) In _____, websites send visitors to other websites in return for a referral fee of revenue from any resulting sales.
 - a) Sales Revenue Model
 - b) Subscription Revenue Model
 - c) Freemium Revenue Model
 - d) Affiliate Revenue Model
- 6) According to agency theory, the firm is viewed as a _____ among self-interested individuals rather than as a unified, profit maximizing entity.
 - a) "nexus of agents"
 - b) "nexus of contracts"
 - c) both a and b
 - d) none of the above

- 7) _____ systems coordinate the business processes surrounding the firm's customers.
- Supply chain management
 - Customer relationship management
 - Knowledge management
 - All of the above
- 8) In a phenomenon called _____, some argue that large numbers of people can make better decisions about a wide range of topics than a single person.
- wisdom of crowds
 - crowdsourcing
 - both a and b
 - none of the above
- 9) Information systems are key instruments for _____, helping managers identify external changes that might require an organizational response.
- Environmental scanning
 - Organizational scanning
 - both a and b
 - none of the above
- 10) _____ is set of self-contained services that communicate with each other to create a working software application.
- A service-based architecture
 - A service-oriented architecture
 - A service-dependent architecture
 - All of the above
- 11) _____ highlights specific activities in the business where competitive strategies can best be applied.
- The chain value model
 - The value chain model
 - both a and b
 - none of the above
- 12) _____ is a computerized system that performs and records the daily routine transactions necessary to conduct business.
- Management Information System
 - Decision Support System
 - Executive Support System
 - Transaction Processing System
- 13) _____ can be used to analyze the direct and indirect costs to help firms determine the actual cost of specific technology implementations.
- Competitive Forces Model
 - Total Cost of Ownership Model
 - both a and b
 - none of these
- 14) The ability to offer individually tailored products or services using the same production resources as mass production is called _____.
- Mass customization
 - Product customization
 - both a and b
 - none of the above

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Management Information Systems (BTN05702)

Day & Date: Thursday, 16-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Three: 12

- Which features of organizations do managers need to know about to build and use information systems successfully?
- Why are systems for collaboration and social business so important? What technologies do they use?
- What is the impact of information systems on organizations?
- What academic disciplines are used to study information systems, and how does each contribute to an understanding of information systems?

Q.3 Solve any Two: 16

- How are information systems transforming business, and why are they essential for running and managing a business today?
- What are the challenges posed by strategic information systems, and how should they be addressed?
- What ethical, social, and political issues are raised by information systems?

Section – II

Q.4 Solve any Three: 12

- What are the challenges of managing IT infrastructure and management solutions?
- What issues must be addressed when building an e-commerce presence?
- What are the problems of managing data resources in a traditional file environment?
- What are the components of an organizational framework for security and control?

Q.5 Solve any Two: 16

- What is the role of m-commerce in business, and what are the most important m-commerce applications?
- What is IT infrastructure, and what are the stages and drivers of IT infrastructure evolution?
- What are the most important tools and technologies for safeguarding information resources?

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the security incident when attackers gain control over the blockchain network resources?
 - a) Re-entrancy attack
 - b) 51% attack
 - c) Brute force attack
 - d) Invasion attack
- 2) A larger hash code cannot be decomposed into independent sub codes.
 - a) True
 - b) False
- 3) Which of the following statement is true about blockchain?
 - a) A blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks.
 - b) A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server.
 - c) A blockchain has been described as a value-exchange protocol.
 - d) All of these
- 4) What is a smart contract?
 - a) Programs stored on a blockchain that run when predetermined conditions are met
 - b) Online contract
 - c) Digital contract
 - d) All of these
- 5) What was the intended objective for creating blockchain?
 - a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these
- 6) Which trees are responsible for storing all transactions in a block through digital signatures of the complete set of transactions?
 - a) Binary
 - b) Merkle
 - c) Red Black
 - d) AVL

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) Illustrate with diagram transaction process in block chain.
 - b) State & illustrate the pros & cons of block chain.
 - c) Explain in detail decentralized identity management.
 - d) Extend in detail Digital Signatures and Public Keys as Identities.

- Q.3 Explain in detail the Mechanics of Bitcoin, Bitcoin Scripts, Storing and Using Bitcoins, Mining in Bitcoin. 08**

OR

Explain with example P2P systems, properties of P2P systems, P2P communication architecture.

- Q.4 Attempt any TWO. 08**
- a) When to use, and when not to use Blockchain
 - b) Centralized, Decentralized and Distributed Systems
 - c) Distributed Consensus

Section – II

- Q.5 Attempt any THREE. 12**
- a) Extend in detail the State and data structure in Ethereum.
 - b) Explain with example developing and executing smart contracts in Ethereum.
 - c) Illustrate the applications of blockchain in privacy and security, also IoT and smart cities.
 - d) Extend in detail the decentralized identity management & incentivizing and mining.

- Q.6 Explain with example Proof of storage, proof of stake, proof of deposit, and proof of burn. 08**

OR

Illustrate the enabling technologies & its applications with IoT and smart cities, Business and Industry, Data management, e-Governance.

- Q.7 Attempt any TWO. 08**
- a) Distributed applications in Hyperledger
 - b) Bitcoin vs Ethereum stack
 - c) State and data structure in Ethereum

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What was the intended objective for creating blockchain?
 - a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these
- 2) What type of hash is used when there is a fixed number of items to be hashed, such as the items in a block header, and we are verifying the composite block integrity?
 - a) Either
 - b) Complex hash
 - c) Simple Hash
 - d) Tree-structured Hash
- 3) The transaction Merkle Tree root value in a Bitcoin block is calculated using,
 - a) Hash of transactions
 - b) Previous block's hash
 - c) Number of transactions
 - d) None of these
- 4) What is Proof of Stake?
 - a) A certificate needed to use the blockchain
 - b) A password needed to access an exchange
 - c) How private keys are made
 - d) A transaction and Block Verification Protocol
- 5) Transactions per second (TPS) for Proof-of-Work Blockchain are approximate?
 - a) 24K per second
 - b) 175K per second
 - c) Only limited to the number of nodes on the network
 - d) 7-15 per second
- 6) What are the different types of tokens in blockchain?
 - a) Platform
 - b) Privacy
 - c) Currency
 - d) All of these
- 7) What is the term applied for splits in a blockchain network?
 - a) Mergers
 - b) Divisions
 - c) Forks
 - d) None of these

- 8) What is the security incident when attackers gain control over the blockchain network resources?
- a) Re-entrancy attack
 - b) 51% attack
 - c) Brute force attack
 - d) Invasion attack
- 9) A larger hash code cannot be decomposed into independent sub codes.
- a) True
 - b) False
- 10) Which of the following statement is true about blockchain?
- a) A blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks.
 - b) A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server.
 - c) A blockchain has been described as a value-exchange protocol.
 - d) All of these
- 11) What is a smart contract?
- a) Programs stored on a blockchain that run when predetermined conditions are met
 - b) Online contract
 - c) Digital contract
 - d) All of these
- 12) What was the intended objective for creating blockchain?
- a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these
- 13) Which trees are responsible for storing all transactions in a block through digital signatures of the complete set of transactions?
- a) Binary
 - b) Merkle
 - c) Red Black
 - d) AVL
- 14) What is the name of the first block in a blockchain?
- a) Block one
 - b) Origin block
 - c) Genesis block
 - d) None of these

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) Illustrate with diagram transaction process in block chain.
 - b) State & illustrate the pros & cons of block chain.
 - c) Explain in detail decentralized identity management.
 - d) Extend in detail Digital Signatures and Public Keys as Identities.

- Q.3 Explain in detail the Mechanics of Bitcoin, Bitcoin Scripts, Storing and Using Bitcoins, Mining in Bitcoin. 08**

OR

Explain with example P2P systems, properties of P2P systems, P2P communication architecture.

- Q.4 Attempt any TWO. 08**
- a) When to use, and when not to use Blockchain
 - b) Centralized, Decentralized and Distributed Systems
 - c) Distributed Consensus

Section – II

- Q.5 Attempt any THREE. 12**
- a) Extend in detail the State and data structure in Ethereum.
 - b) Explain with example developing and executing smart contracts in Ethereum.
 - c) Illustrate the applications of blockchain in privacy and security, also IoT and smart cities.
 - d) Extend in detail the decentralized identity management & incentivizing and mining.

- Q.6 Explain with example Proof of storage, proof of stake, proof of deposit, and proof of burn. 08**

OR

Illustrate the enabling technologies & its applications with IoT and smart cities, Business and Industry, Data management, e-Governance.

- Q.7 Attempt any TWO. 08**
- a) Distributed applications in Hyperledger
 - b) Bitcoin vs Ethereum stack
 - c) State and data structure in Ethereum

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)**

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is Proof of Stake?
 - a) A certificate needed to use the blockchain
 - b) A password needed to access an exchange
 - c) How private keys are made
 - d) A transaction and Block Verification Protocol
- 2) Transactions per second (TPS) for Proof-of-Work Blockchain are approximate?
 - a) 24K per second
 - b) 175K per second
 - c) Only limited to the number of nodes on the network
 - d) 7-15 per second
- 3) What are the different types of tokens in blockchain?

a) Platform	b) Privacy
c) Currency	d) All of these
- 4) What is the term applied for splits in a blockchain network?

a) Mergers	b) Divisions
c) Forks	d) None of these
- 5) What is the security incident when attackers gain control over the blockchain network resources?

a) Re-entrancy attack	b) 51% attack
c) Brute force attack	d) Invasion attack
- 6) A larger hash code cannot be decomposed into independent sub codes.

a) True	b) False
---------	----------
- 7) Which of the following statement is true about blockchain?
 - a) A blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks.
 - b) A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server.
 - c) A blockchain has been described as a value-exchange protocol.
 - d) All of these

- 8) What is a smart contract?
- a) Programs stored on a blockchain that run when predetermined conditions are met
 - b) Online contract
 - c) Digital contract
 - d) All of these
- 9) What was the intended objective for creating blockchain?
- a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these
- 10) Which trees are responsible for storing all transactions in a block through digital signatures of the complete set of transactions?
- a) Binary
 - b) Merkle
 - c) Red Black
 - d) AVL
- 11) What is the name of the first block in a blockchain?
- a) Block one
 - b) Origin block
 - c) Genesis block
 - d) None of these
- 12) What was the intended objective for creating blockchain?
- a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these
- 13) What type of hash is used when there is a fixed number of items to be hashed, such as the items in a block header, and we are verifying the composite block integrity?
- a) Either
 - b) Complex hash
 - c) Simple Hash
 - d) Tree-structured Hash
- 14) The transaction Merkle Tree root value in a Bitcoin block is calculated using,
- a) Hash of transactions
 - b) Previous block's hash
 - c) Number of transactions
 - d) None of these

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) Illustrate with diagram transaction process in block chain.
 - b) State & illustrate the pros & cons of block chain.
 - c) Explain in detail decentralized identity management.
 - d) Extend in detail Digital Signatures and Public Keys as Identities.

- Q.3 Explain in detail the Mechanics of Bitcoin, Bitcoin Scripts, Storing and Using Bitcoins, Mining in Bitcoin. 08**

OR

Explain with example P2P systems, properties of P2P systems, P2P communication architecture.

- Q.4 Attempt any TWO. 08**
- a) When to use, and when not to use Blockchain
 - b) Centralized, Decentralized and Distributed Systems
 - c) Distributed Consensus

Section – II

- Q.5 Attempt any THREE. 12**
- a) Extend in detail the State and data structure in Ethereum.
 - b) Explain with example developing and executing smart contracts in Ethereum.
 - c) Illustrate the applications of blockchain in privacy and security, also IoT and smart cities.
 - d) Extend in detail the decentralized identity management & incentivizing and mining.

- Q.6 Explain with example Proof of storage, proof of stake, proof of deposit, and proof of burn. 08**

OR

Illustrate the enabling technologies & its applications with IoT and smart cities, Business and Industry, Data management, e-Governance.

- Q.7 Attempt any TWO. 08**
- a) Distributed applications in Hyperledger
 - b) Bitcoin vs Ethereum stack
 - c) State and data structure in Ethereum

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which trees are responsible for storing all transactions in a block through digital signatures of the complete set of transactions?

a) Binary	b) Merkle
c) Red Black	d) AVL
- 2) What is the name of the first block in a blockchain?

a) Block one	b) Origin block
c) Genesis block	d) None of these
- 3) What was the intended objective for creating blockchain?
 - a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these
- 4) What type of hash is used when there is a fixed number of items to be hashed, such as the items in a block header, and we are verifying the composite block integrity?

a) Either	b) Complex hash
c) Simple Hash	d) Tree-structured Hash
- 5) The transaction Merkle Tree root value in a Bitcoin block is calculated using,

a) Hash of transactions	b) Previous block's hash
c) Number of transactions	d) None of these
- 6) What is Proof of Stake?
 - a) A certificate needed to use the blockchain
 - b) A password needed to access an exchange
 - c) How private keys are made
 - d) A transaction and Block Verification Protocol

- 7) Transactions per second (TPS) for Proof-of-Work Blockchain are approximate?
- a) 24K per second
 - b) 175K per second
 - c) Only limited to the number of nodes on the network
 - d) 7-15 per second
- 8) What are the different types of tokens in blockchain?
- a) Platform
 - b) Privacy
 - c) Currency
 - d) All of these
- 9) What is the term applied for splits in a blockchain network?
- a) Mergers
 - b) Divisions
 - c) Forks
 - d) None of these
- 10) What is the security incident when attackers gain control over the blockchain network resources?
- a) Re-entrancy attack
 - b) 51% attack
 - c) Brute force attack
 - d) Invasion attack
- 11) A larger hash code cannot be decomposed into independent sub codes.
- a) True
 - b) False
- 12) Which of the following statement is true about blockchain?
- a) A blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks.
 - b) A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server.
 - c) A blockchain has been described as a value-exchange protocol.
 - d) All of these
- 13) What is a smart contract?
- a) Programs stored on a blockchain that run when predetermined conditions are met
 - b) Online contract
 - c) Digital contract
 - d) All of these
- 14) What was the intended objective for creating blockchain?
- a) Research project
 - b) Peer-to-peer electronic cash system
 - c) Open-source network for connecting banks
 - d) None of these

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Blockchain Technology (BTN05708)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any THREE. 12**
- a) Illustrate with diagram transaction process in block chain.
 - b) State & illustrate the pros & cons of block chain.
 - c) Explain in detail decentralized identity management.
 - d) Extend in detail Digital Signatures and Public Keys as Identities.

- Q.3 Explain in detail the Mechanics of Bitcoin, Bitcoin Scripts, Storing and Using Bitcoins, Mining in Bitcoin. 08**

OR

Explain with example P2P systems, properties of P2P systems, P2P communication architecture.

- Q.4 Attempt any TWO. 08**
- a) When to use, and when not to use Blockchain
 - b) Centralized, Decentralized and Distributed Systems
 - c) Distributed Consensus

Section – II

- Q.5 Attempt any THREE. 12**
- a) Extend in detail the State and data structure in Ethereum.
 - b) Explain with example developing and executing smart contracts in Ethereum.
 - c) Illustrate the applications of blockchain in privacy and security, also IoT and smart cities.
 - d) Extend in detail the decentralized identity management & incentivizing and mining.

- Q.6 Explain with example Proof of storage, proof of stake, proof of deposit, and proof of burn. 08**

OR

Illustrate the enabling technologies & its applications with IoT and smart cities, Business and Industry, Data management, e-Governance.

- Q.7 Attempt any TWO. 08**
- a) Distributed applications in Hyperledger
 - b) Bitcoin vs Ethereum stack
 - c) State and data structure in Ethereum

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The data node and name node in HADOOP are
 - a) Worker node and master node respectively
 - b) Master node and worker node respectively
 - c) Both worker nodes
 - d) Both master nodes
- 2) Which of the following are is component of Hadoop.
 - a) YARN
 - b) HDFS
 - c) Map Reduce
 - d) All these
- 3) Operational database with distributed systems and _____based system can harness the true potential with Big Data.
 - a) SQL
 - b) NoSQL
 - c) PL/SQL
 - d) None of these
- 4) Apache HBase is a non-relational database modeled after Google's _____.
 - a) BigTop
 - b) BigTable
 - c) Scanner
 - d) FoundationDB
- 5) Which among the following runs on top of HDFS and provides BigTable (Google) like capabilities to Hadoop.
 - a) HBase
 - b) Hive
 - c) Pig
 - d) HCatalog
- 6) Hbase is what type of database?
 - a) Schema-rigid
 - b) Schema-flexi
 - c) Schema-less
 - d) Not a database
- 7) In which year apache Pig was released.
 - a) 2005
 - b) 2006
 - c) 2007
 - d) 2008
- 8) Use the _____ command to run a Pig script that can interact with the Grunt shell (interactive mode).
 - a) Fetch
 - b) Declare
 - c) Run
 - d) Execute

- 9) Streaming supports streaming command options as well as _____ command options.
- a) Generic
 - b) Tool
 - c) library
 - d) Task
- 10) Which of the following Hadoop streaming command option parameter is required.
- a) output directoryname
 - b) mapper executable
 - c) input directoryname
 - d) all of the mentioned
- 11) Data in _____ bytes size is called big data.
- a) Meta
 - b) Giga
 - c) Tera
 - d) Peta
- 12) On which of the following platforms does Hadoop run?
- a) Debian
 - b) Cross-platform
 - c) Bare Metal
 - d) Unix-like
- 13) Which of the following is the only way of running mappers?
- a) MapReducer
 - b) MapRunner
 - c) MapRed
 - d) All of these
- 14) Apache _____ is a serialization framework that produces data in a compact binary format.
- a) Oozie
 - b) Impala
 - c) kafka
 - d) Avro

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four questions. 16**
- a) What is a Map reduce in Hadoop? When to use MapReduce with Big Data?
 - b) Write down the four computing resources of Big Data Storage.
 - c) What are the three modes in which hadoop can run.
 - d) Mention features of Apache scoop?
 - e) Explain Hadoop. List the core components of Hadoop.
- Q.3 Answer the following questions. 12**
- a) Explain in detail about Storage Considerations in Big Data.
 - b) Explain in detail about HDFS.

Section – II

- Q.4 Attempt any Four. 16**
- a) What are the different components of a HIVE structure? Explain the role of each component.
 - b) What are the key components of HBASE? Explain the role of each Component.
 - c) What are the key differences between HIVE and PIG?
 - d) What is supervised learning? Name special cases of supervised learning depending on whether the inputs/outputs are categorical, ordinal, or continuous?
 - e) What are the advantages and disadvantages of R programming
- Q.5 Answer the following questions. 12**
- a) Describe the following terms related to the HIVE.
 - i) Hive Shell
 - ii) Hive Services
 - iii) Hive MetaStore
 - iv) HiveQL,
 - b) Describe in detail execution modes of Pig.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Use the _____ command to run a Pig script that can interact with the Grunt shell (interactive mode).

a) Fetch	b) Declare
c) Run	d) Execute
- 2) Streaming supports streaming command options as well as _____ command options.

a) Generic	b) Tool
c) library	d) Task
- 3) Which of the following Hadoop streaming command option parameter is required.

a) output directoryname	b) mapper executable
c) input directoryname	d) all of the mentioned
- 4) Data in _____ bytes size is called big data.

a) Meta	b) Gita
c) Tera	d) Peta
- 5) On which of the following platforms does Hadoop run?

a) Debian	b) Cross-platform
c) Bare Metal	d) Unix-like
- 6) Which of the following is the only way of running mappers?

a) MapReducer	b) MapRunner
c) MapRed	d) All of these
- 7) Apache _____ is a serialization framework that produces data in a compact binary format.

a) Oozie	b) Impala
c) kafka	d) Avro

- 8) The data node and name node in HADOOP are
- a) Worker node and master node respectively
 - b) Master node and worker node respectively
 - c) Both worker nodes
 - d) Both master nodes
- 9) Which of the following are is component of Hadoop.
- a) YARN
 - b) HDFS
 - c) Map Reduce
 - d) All these
- 10) Operational database with distributed systems and _____based system can harness the true potential with Big Data.
- a) SQL
 - b) NoSQL
 - c) PL/SQL
 - d) None of these
- 11) Apache HBase is a non-relational database modeled after Google's _____.
- a) BigTop
 - b) BigTable
 - c) Scanner
 - d) FoundationDB
- 12) Which among the following runs on top of HDFS and provides BigTable (Google) like capabilities to Hadoop.
- a) HBase
 - b) Hive
 - c) Pig
 - d) HCatalog
- 13) Hbase is what type of database?
- a) Schema-rigid
 - b) Schema-flexi
 - c) Schema-less
 - d) Not a database
- 14) In which year apache Pig was released.
- a) 2005
 - b) 2006
 - c) 2007
 - d) 2008

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four questions. 16**
- a) What is a Map reduce in Hadoop? When to use MapReduce with Big Data?
 - b) Write down the four computing resources of Big Data Storage.
 - c) What are the three modes in which hadoop can run.
 - d) Mention features of Apache scoop?
 - e) Explain Hadoop. List the core components of Hadoop.
- Q.3 Answer the following questions. 12**
- a) Explain in detail about Storage Considerations in Big Data.
 - b) Explain in detail about HDFS.

Section – II

- Q.4 Attempt any Four. 16**
- a) What are the different components of a HIVE structure? Explain the role of each component.
 - b) What are the key components of HBASE? Explain the role of each Component.
 - c) What are the key differences between HIVE and PIG?
 - d) What is supervised learning? Name special cases of supervised learning depending on whether the inputs/outputs are categorical, ordinal, or continuous?
 - e) What are the advantages and disadvantages of R programming
- Q.5 Answer the following questions. 12**
- a) Describe the following terms related to the HIVE.
 - i) Hive Shell
 - ii) Hive Services
 - iii) Hive MetaStore
 - iv) HiveQL,
 - b) Describe in detail execution modes of Pig.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Data in _____ bytes size is called big data.
 - a) Meta
 - b) Gita
 - c) Tera
 - d) Peta
- 2) On which of the following platforms does Hadoop run?
 - a) Debian
 - b) Cross-platform
 - c) Bare Metal
 - d) Unix-like
- 3) Which of the following is the only way of running mappers?
 - a) MapReducer
 - b) MapRunner
 - c) MapRed
 - d) All of these
- 4) Apache _____ is a serialization framework that produces data in a compact binary format.
 - a) Oozie
 - b) Impala
 - c) kafka
 - d) Avro
- 5) The data node and name node in HADOOP are
 - a) Worker node and master node respectively
 - b) Master node and worker node respectively
 - c) Both worker nodes
 - d) Both master nodes
- 6) Which of the following are is component of Hadoop.
 - a) YARN
 - b) HDFS
 - c) Map Reduce
 - d) All these
- 7) Operational database with distributed systems and _____ based system can harness the true potential with Big Data.
 - a) SQL
 - b) NoSQL
 - c) PL/SQL
 - d) None of these
- 8) Apache HBase is a non-relational database modeled after Google's _____.
 - a) BigTop
 - b) BigTable
 - c) Scanner
 - d) FoundationDB

- 9) Which among the following runs on top of HDFS and provides BigTable (Google) like capabilities to Hadoop.
- a) HBase
 - b) Hive
 - c) Pig
 - d) HCatalog
- 10) Hbase is what type of database?
- a) Schema-rigid
 - b) Schema-flexi
 - c) Schema-less
 - d) Not a database
- 11) In which year apache Pig was released.
- a) 2005
 - b) 2006
 - c) 2007
 - d) 2008
- 12) Use the _____ command to run a Pig script that can interact with the Grunt shell (interactive mode).
- a) Fetch
 - b) Declare
 - c) Run
 - d) Execute
- 13) Streaming supports streaming command options as well as _____ command options.
- a) Generic
 - b) Tool
 - c) library
 - d) Task
- 14) Which of the following Hadoop streaming command option parameter is required.
- a) output directoryname
 - b) mapper executable
 - c) input directoryname
 - d) all of the mentioned

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four questions. 16**
- a) What is a Map reduce in Hadoop? When to use MapReduce with Big Data?
 - b) Write down the four computing resources of Big Data Storage.
 - c) What are the three modes in which hadoop can run.
 - d) Mention features of Apache scoop?
 - e) Explain Hadoop. List the core components of Hadoop.
- Q.3 Answer the following questions. 12**
- a) Explain in detail about Storage Considerations in Big Data.
 - b) Explain in detail about HDFS.

Section – II

- Q.4 Attempt any Four. 16**
- a) What are the different components of a HIVE structure? Explain the role of each component.
 - b) What are the key components of HBASE? Explain the role of each Component.
 - c) What are the key differences between HIVE and PIG?
 - d) What is supervised learning? Name special cases of supervised learning depending on whether the inputs/outputs are categorical, ordinal, or continuous?
 - e) What are the advantages and disadvantages of R programming
- Q.5 Answer the following questions. 12**
- a) Describe the following terms related to the HIVE.
 - i) Hive Shell
 - ii) Hive Services
 - iii) Hive MetaStore
 - iv) HiveQL,
 - b) Describe in detail execution modes of Pig.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Hbase is what type of database?

a) Schema-rigid	b) Schema-flexi
c) Schema-less	d) Not a database
- 2) In which year apache Pig was released.

a) 2005	b) 2006
c) 2007	d) 2008
- 3) Use the _____ command to run a Pig script that can interact with the Grunt shell (interactive mode).

a) Fetch	b) Declare
c) Run	d) Execute
- 4) Streaming supports streaming command options as well as _____ command options.

a) Generic	b) Tool
c) library	d) Task
- 5) Which of the following Hadoop streaming command option parameter is required.

a) output directoryname	b) mapper executable
c) input directoryname	d) all of the mentioned
- 6) Data in _____ bytes size is called big data.

a) Meta	b) Gita
c) Tera	d) Peta
- 7) On which of the following platforms does Hadoop run?

a) Debian	b) Cross-platform
c) Bare Metal	d) Unix-like
- 8) Which of the following is the only way of running mappers?

a) MapReducer	b) MapRunner
c) MapRed	d) All of these

- 9) Apache _____ is a serialization framework that produces data in a compact binary format.
- a) Oozie
 - b) Impala
 - c) kafka
 - d) Avro
- 10) The data node and name node in HADOOP are
- a) Worker node and master node respectively
 - b) Master node and worker node respectively
 - c) Both worker nodes
 - d) Both master nodes
- 11) Which of the following are is component of Hadoop.
- a) YARN
 - b) HDFS
 - c) Map Reduce
 - d) All these
- 12) Operational database with distributed systems and _____based system can harness the true potential with Big Data.
- a) SQL
 - b) NoSQL
 - c) PL/SQL
 - d) None of these
- 13) Apache HBase is a non-relational database modeled after Google's _____.
- a) BigTop
 - b) BigTable
 - c) Scanner
 - d) FoundationDB
- 14) Which among the following runs on top of HDFS and provides BigTable (Google) like capabilities to Hadoop.
- a) HBase
 - b) Hive
 - c) Pig
 - d) HCatalog

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Big Data Analytics (BTN05710)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four questions. 16**
- a) What is a Map reduce in Hadoop? When to use MapReduce with Big Data?
 - b) Write down the four computing resources of Big Data Storage.
 - c) What are the three modes in which hadoop can run.
 - d) Mention features of Apache scoop?
 - e) Explain Hadoop. List the core components of Hadoop.
- Q.3 Answer the following questions. 12**
- a) Explain in detail about Storage Considerations in Big Data.
 - b) Explain in detail about HDFS.

Section – II

- Q.4 Attempt any Four. 16**
- a) What are the different components of a HIVE structure? Explain the role of each component.
 - b) What are the key components of HBASE? Explain the role of each Component.
 - c) What are the key differences between HIVE and PIG?
 - d) What is supervised learning? Name special cases of supervised learning depending on whether the inputs/outputs are categorical, ordinal, or continuous?
 - e) What are the advantages and disadvantages of R programming
- Q.5 Answer the following questions. 12**
- a) Describe the following terms related to the HIVE.
 - i) Hive Shell
 - ii) Hive Services
 - iii) Hive MetaStore
 - iv) HiveQL,
 - b) Describe in detail execution modes of Pig.

Seat No.	
----------	--

Set

P

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is a subset of machine learning?
 - a) Numpy
 - b) SciPy
 - c) Deep Learning
 - d) All of the above
- 2) The first layer in ANN is called the?
 - a) inner layer
 - b) outer layer
 - c) hidden layer
 - d) None of the above
- 3) Which neural network has only one hidden layer between the input and output?
 - a) Shallow neural network
 - b) Deep neural network
 - c) Feed-forward neural networks
 - d) Recurrent neural networks
- 4) Which of the following is/are Limitations of deep learning?
 - a) Data labeling
 - b) Obtain huge training datasets
 - c) Both A and B
 - d) None of the above
- 5) Deep learning algorithms are _____ more accurate than machine learning algorithm in image classification.
 - a) 33%
 - b) 37%
 - c) 40%
 - d) 41%
- 6) In which of the following applications can we use deep learning to solve the problem?
 - a) Protein structure prediction
 - b) Prediction of chemical reactions
 - c) Detection of exotic particles
 - d) All of the above
- 7) What is a tensor in Tensor Flow?
 - a) A machine learning model
 - b) A type of data structure
 - c) A database management system
 - d) A programming language

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three.** **12**
- What are the different kinds of Learning? Show how Deep Learning is different.
 - What is Back propagation? Illustrate
 - What are the elements of a feed forward network? Give illustrations for each element.
 - How does the history of Deep learning help us to add on to technology that can generate better automation and prediction in solutions?
- Q.3 Attempt any one.** **08**
- Develop a complete schema to illustrate the Back propagation Algorithm with its characteristics.
 - With examples Illustrate the difference between AI, ML and DL
- Q.4 Attempt the following.** **08**
- Explain the use of activation functions and Regularization methods for Deep Learning with examples.

Section - II

- Q.5 Attempt any three** **12**
- What are Auto encoders? Illustrate.
 - Illustrate the working of LSTMs
 - Develop an environment for using RNNs.
 - What is sequential data? What are it's problems?
- Q.6 Attempt any one** **08**
- What are the components of Auto encoders? How are they formulated? Give detailed steps.
 - Illustrate different Recurrent Neural Network topologies.
- Q.7 Attempt the following** **08**
- Compare between Bidirectional LSTM's and RNNs.

Seat No.	
-------------	--

Set **Q**

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the default data type of Tensor Flow tensors?
 - a) int64
 - b) float32
 - c) Double
 - d) int32
- 2) What is a placeholder in Tensor Flow?
 - a) A variable that holds the output of a neural network
 - b) A variable that holds the input data for a neural network
 - c) A variable that holds the weights of a neural network
 - d) A variable that holds the bias of a neural network
- 3) How many backend engines does Keras consist of?
 - a) 2
 - b) 3
 - c) 4
 - d) 9
- 4) What is the primary purpose of a Convolutional Neural Network (CNN)?
 - a) Object detection
 - b) Image classification
 - c) Text generation
 - d) Reinforcement learning
- 5) What is the purpose of the stride parameter in a convolutional layer?
 - a) To determine the size of the receptive field
 - b) To control the step size of the convolution operation
 - c) To adjust the learning rate during training
 - d) None of the above
- 6) What is the primary purpose of a Recurrent Neural Network (RNN)?
 - a) Image classification
 - b) Text generation
 - c) Reinforcement learning
 - d) Object detection
- 7) Which layer type is typically used to capture sequential dependencies in an RNN?
 - a) Input layer
 - b) Hidden layer
 - c) Output layer
 - d) Activation layer
- 8) Which of the following is a subset of machine learning?
 - a) Numpy
 - b) SciPy
 - c) Deep Learning
 - d) All of the above

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three.** **12**
- What are the different kinds of Learning? Show how Deep Learning is different.
 - What is Back propagation? Illustrate
 - What are the elements of a feed forward network? Give illustrations for each element.
 - How does the history of Deep learning help us to add on to technology that can generate better automation and prediction in solutions?
- Q.3 Attempt any one.** **08**
- Develop a complete schema to illustrate the Back propagation Algorithm with its characteristics.
 - With examples Illustrate the difference between AI, ML and DL
- Q.4 Attempt the following.** **08**
- Explain the use of activation functions and Regularization methods for Deep Learning with examples.

Section - II

- Q.5 Attempt any three** **12**
- What are Auto encoders? Illustrate.
 - Illustrate the working of LSTMs
 - Develop an environment for using RNNs.
 - What is sequential data? What are it's problems?
- Q.6 Attempt any one** **08**
- What are the components of Auto encoders? How are they formulated? Give detailed steps.
 - Illustrate different Recurrent Neural Network topologies.
- Q.7 Attempt the following** **08**
- Compare between Bidirectional LSTM's and RNNs.

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the primary purpose of a Convolutional Neural Network (CNN)?
 - a) Object detection
 - b) Image classification
 - c) Text generation
 - d) Reinforcement learning
- 2) What is the purpose of the stride parameter in a convolutional layer?
 - a) To determine the size of the receptive field
 - b) To control the step size of the convolution operation
 - c) To adjust the learning rate during training
 - d) None of the above
- 3) What is the primary purpose of a Recurrent Neural Network (RNN)?
 - a) Image classification
 - b) Text generation
 - c) Reinforcement learning
 - d) Object detection
- 4) Which layer type is typically used to capture sequential dependencies in an RNN?
 - a) Input layer
 - b) Hidden layer
 - c) Output layer
 - d) Activation layer
- 5) Which of the following is a subset of machine learning?
 - a) Numpy
 - b) SciPy
 - c) Deep Learning
 - d) All of the above
- 6) The first layer in ANN is called the?
 - a) inner layer
 - b) outer layer
 - c) hidden layer
 - d) None of the above
- 7) Which neural network has only one hidden layer between the input and output?
 - a) Shallow neural network
 - b) Deep neural network
 - c) Feed-forward neural networks
 - d) Recurrent neural networks
- 8) Which of the following is/are Limitations of deep learning?
 - a) Data labeling
 - b) Obtain huge training datasets
 - c) Both A and B
 - d) None of the above

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three.** **12**
- What are the different kinds of Learning? Show how Deep Learning is different.
 - What is Back propagation? Illustrate
 - What are the elements of a feed forward network? Give illustrations for each element.
 - How does the history of Deep learning help us to add on to technology that can generate better automation and prediction in solutions?
- Q.3 Attempt any one.** **08**
- Develop a complete schema to illustrate the Back propagation Algorithm with its characteristics.
 - With examples Illustrate the difference between AI, ML and DL
- Q.4 Attempt the following.** **08**
- Explain the use of activation functions and Regularization methods for Deep Learning with examples.

Section - II

- Q.5 Attempt any three** **12**
- What are Auto encoders? Illustrate.
 - Illustrate the working of LSTMs
 - Develop an environment for using RNNs.
 - What is sequential data? What are it's problems?
- Q.6 Attempt any one** **08**
- What are the components of Auto encoders? How are they formulated? Give detailed steps.
 - Illustrate different Recurrent Neural Network topologies.
- Q.7 Attempt the following** **08**
- Compare between Bidirectional LSTM's and RNNs.

Seat No.	
----------	--

Set **S**

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In which of the following applications can we use deep learning to solve the problem?
 - a) Protein structure prediction
 - b) Prediction of chemical reactions
 - c) Detection of exotic particles
 - d) All of the above
- 2) What is a tensor in Tensor Flow?
 - a) A machine learning model
 - b) A type of data structure
 - c) A database management system
 - d) A programming language
- 3) What is the default data type of Tensor Flow tensors?
 - a) int64
 - b) float32
 - c) Double
 - d) int32
- 4) What is a placeholder in Tensor Flow?
 - a) A variable that holds the output of a neural network
 - b) A variable that holds the input data for a neural network
 - c) A variable that holds the weights of a neural network
 - d) A variable that holds the bias of a neural network
- 5) How many backend engines does Keras consist of?
 - a) 2
 - b) 3
 - c) 4
 - d) 9
- 6) What is the primary purpose of a Convolutional Neural Network (CNN)?
 - a) Object detection
 - b) Image classification
 - c) Text generation
 - d) Reinforcement learning

- 7) What is the purpose of the stride parameter in a convolutional layer?
- a) To determine the size of the receptive field
 - b) To control the step size of the convolution operation
 - c) To adjust the learning rate during training
 - d) None of the above
- 8) What is the primary purpose of a Recurrent Neural Network (RNN)?
- a) Image classification
 - b) Text generation
 - c) Reinforcement learning
 - d) Object detection
- 9) Which layer type is typically used to capture sequential dependencies in an RNN?
- a) Input layer
 - b) Hidden layer
 - c) Output layer
 - d) Activation layer
- 10) Which of the following is a subset of machine learning?
- a) Numpy
 - b) SciPy
 - c) Deep Learning
 - d) All of the above
- 11) The first layer in ANN is called the?
- a) inner layer
 - b) outer layer
 - c) hidden layer
 - d) None of the above
- 12) Which neural network has only one hidden layer between the input and output?
- a) Shallow neural network
 - b) Deep neural network
 - c) Feed-forward neural networks
 - d) Recurrent neural networks
- 13) Which of the following is/are Limitations of deep learning?
- a) Data labeling
 - b) Obtain huge training datasets
 - c) Both A and B
 - d) None of the above
- 14) Deep learning algorithms are _____ more accurate than machine learning algorithm in image classification.
- a) 33%
 - b) 37%
 - c) 40%
 - d) 41%

SLR-JE-377

Seat No.	
-----------------	--

Set S

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Deep Learning (BTN05713)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any three. 12

- What are the different kinds of Learning? Show how Deep Learning is different.
- What is Back propagation? Illustrate
- What are the elements of a feed forward network? Give illustrations for each element.
- How does the history of Deep learning help us to add on to technology that can generate better automation and prediction in solutions?

Q.3 Attempt any one. 08

- Develop a complete schema to illustrate the Back propagation Algorithm with its characteristics.
- With examples Illustrate the difference between AI, ML and DL

Q.4 Attempt the following. 08

Explain the use of activation functions and Regularization methods for Deep Learning with examples.

Section - II

Q.5 Attempt any three 12

- What are Auto encoders? Illustrate.
- Illustrate the working of LSTMs
- Develop an environment for using RNNs.
- What is sequential data? What are its problems?

Q.6 Attempt any one 08

- What are the components of Auto encoders? How are they formulated? Give detailed steps.
- Illustrate different Recurrent Neural Network topologies.

Q.7 Attempt the following 08

Compare between Bidirectional LSTM's and RNNs.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following are examples of predictive analytics?
 - a) Finding People's buying pattern
 - b) Pricing goods and services
 - c) Weather Forecast
 - d) All of these
- 2) _____ data derives from transactions and can be collected automatically.
 - a) Streamed
 - b) Behavioral
 - c) Attitudinal
 - d) Demographic data
- 3) The process of _____ involves spotting missing values, duplicate records, and outliers.
 - a) Data Preprocessing
 - b) Data Visualization
 - c) Data Analysis
 - d) Data Modeling
- 4) The nucleus that makes sense out of big data is called _____.
 - a) Big Data centre
 - b) smart data
 - c) Noise
 - d) sensible data
- 5) In flocking bird data representation, _____ rules means flock mates move average position of their flock mate.
 - a) Separation
 - b) Alignment
 - c) Cohesion
 - d) all of these
- 6) Visualizing data will help you in the very first steps of _____.
 - a) data collection
 - b) data preparation
 - c) data modeling
 - d) data testing
- 7) _____ is a method used to predict future numerical value of a variable.
 - a) Classification
 - b) Regression
 - c) Clustering
 - d) all of the above

- 8) _____ is used to predict category or group that a new and incoming data object belongs to.
- a) Data clustering
 - b) Data Classification
 - c) Data Regression
 - d) Data Association
- 9) Which algorithm is used for frequent itemset mining?
- a) Decision tree algorithm
 - b) K-nearest neighbors algorithm
 - c) Apriori algorithm
 - d) Naive Bayes algorithm
- 10) Stream of unstructured text data to structured data is example of property called _____.
- a) Data Variety
 - b) Data Velocity
 - c) Data Value
 - d) Data Veracity
- 11) _____ search is about discovering that right time to display the right results and to right user.
- a) keyword based
 - b) semantic based
 - c) contextual search
 - d) all of the above
- 12) Which of the following method can be used to combine different classifiers?
- a) Model stacking
 - b) Model combining
 - c) Model structuring
 - d) Model Ensembling
- 13) Deep learning algorithm improves ability of _____ algorithm to detect complex problems.
- a) Support vector machine
 - b) neural network
 - c) Naive bays
 - d) k means
- 14) In neural network, _____ layer encapsulates several complex functions that creates predictors.
- a) Input
 - b) Output
 - c) Hidden
 - d) none of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) Explain recommendation system and hybrid recommendation system.
 - b) For modeling customer's behaviour, which data of past is will be required?
 - c) Explain big data and smart data.
 - d) Explain uplift modeling.
- Q.3 Attempt any one. 08**
- a) Compare following data types based on various characteristics
 - i) structured and unstructured data
 - ii) Static and streamed data
 - iii) Attitudinal and Behavioral
 - b) Explain different ways of searching unstructured data.
- Q.4 Attempt the following. 08**
- What is collaborative filtering? Explain various types of collaborative filtering.

Section – II

- Q.5 Attempt any three 12**
- a) Explain hidden Markov model.
 - b) Explain steps of biologically inspired data clustering algorithms.
 - c) Explain clustering and classification model.
 - d) Explain deep learning.

Q.6 Attempt any one

a) Explain Support Vector Machine classification algorithm and ensemble mode.

b) Consider following dataset.

For given instance X = (Childless, old. and High), whether person will buy the car. Find out the prediction using Naive bays algorithm?

Type of family structure	Age group	Income status	Will they buy a car?
Nuclear	Young	Low	Yes
Extended	Old	Low	No
Childless	Middle-aged	Low	No
Childless	Young	Medium	Yes
Single Parent	Middle-aged	Medium	Yes
Childless	Young	Low	No
Nuclear	Old	High	Yes
Nuclear	Middle-aged	Medium	Yes
Extended	Middle-aged	High	Yes
Single Parent	Old	Low	No

Q.7 Attempt the following

Consider following transactions and find Association Rules using apriori algorithm with minimum support 50% and minimum confidence of 60%.

TID	items
T1	11,12,15
T2	12,14
T3	12,13
T4	11,12,14
T5	11,13
T6	12,13
T7	11,13
T8	11,12,13,15
T9	11,12,13

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is used to predict category or group that a new and incoming data object belongs to.

a) Data clustering	b) Data Classification
c) Data Regression	d) Data Association
- 2) Which algorithm is used for frequent itemset mining?

a) Decision tree algorithm	b) K-nearest neighbors algorithm
c) Apriori algorithm	d) Naive Bayes algorithm
- 3) Stream of unstructured text data to structured data is example of property called _____.

a) Data Variety	b) Data Velocity
c) Data Value	d) Data Veracity
- 4) _____ search is about discovering that right time to display the right results and to right user.

a) keyword based	b) semantic based
c) contextual search	d) all of the above
- 5) Which of the following method can be used to combine different classifiers?

a) Model stacking	b) Model combining
c) Model structuring	d) Model Ensembling
- 6) Deep learning algorithm improves ability of _____ algorithm to detect complex problems.

a) Support vector machine	b) neural network
c) Naive bays	d) k means
- 7) In neural network, _____ layer encapsulates several complex functions that creates predictors.

a) Input	b) Output
c) Hidden	d) none of these

- 8) Which of the following are examples of predictive analytics?
- a) Finding People's buying pattern
 - b) Pricing goods and services
 - c) Weather Forecast
 - d) All of these
- 9) _____ data derives from transactions and can be collected automatically.
- a) Streamed
 - b) Behavioral
 - c) Attitudinal
 - d) Demographic data
- 10) The process of _____ involves spotting missing values, duplicate records, and outliers.
- a) Data Preprocessing
 - b) Data Visualization
 - c) Data Analysis
 - d) Data Modeling
- 11) The nucleus that makes sense out of big data is called _____.
- a) Big Data centre
 - b) smart data
 - c) Noise
 - d) sensible data
- 12) In flocking bird data representation, _____ rules means flock mates move average position of their flock mate.
- a) Separation
 - b) Alignment
 - c) Cohesion
 - d) all of these
- 13) Visualizing data will help you in the very first steps of _____.
- a) data collection
 - b) data preparation
 - c) data modeling
 - d) data testing
- 14) _____ is a method used to predict future numerical value of a variable.
- a) Classification
 - b) Regression
 - c) Clustering
 - d) all of the above

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) Explain recommendation system and hybrid recommendation system.
 - b) For modeling customer's behaviour, which data of past is will be required?
 - c) Explain big data and smart data.
 - d) Explain uplift modeling.
- Q.3 Attempt any one. 08**
- a) Compare following data types based on various characteristics
 - i) structured and unstructured data
 - ii) Static and streamed data
 - iii) Attitudinal and Behavioral
 - b) Explain different ways of searching unstructured data.
- Q.4 Attempt the following. 08**
- What is collaborative filtering? Explain various types of collaborative filtering.

Section – II

- Q.5 Attempt any three 12**
- a) Explain hidden Markov model.
 - b) Explain steps of biologically inspired data clustering algorithms.
 - c) Explain clustering and classification model.
 - d) Explain deep learning.

Q.6 Attempt any one

- a) Explain Support Vector Machine classification algorithm and ensemble mode.
- b) Consider following dataset.
For given instance $X = (\text{Childless, old. and High})$, whether person will buy the car. Find out the prediction using Naive bays algorithm?

Type of family structure	Age group	Income status	Will they buy a car?
Nuclear	Young	Low	Yes
Extended	Old	Low	No
Childless	Middle-aged	Low	No
Childless	Young	Medium	Yes
Single Parent	Middle-aged	Medium	Yes
Childless	Young	Low	No
Nuclear	Old	High	Yes
Nuclear	Middle-aged	Medium	Yes
Extended	Middle-aged	High	Yes
Single Parent	Old	Low	No

Q.7 Attempt the following

Consider following transactions and find Association Rules using apriori algorithm with minimum support 50% and minimum confidence of 60%.

TID	items
T1	I1,I2,I5
T2	I2,I4
T3	I2,I3
T4	I1,I2,I4
T5	I1,I3
T6	I2,I3
T7	I1,I3
T8	I1,I2,I3,I5
T9	I1,I2,I3

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ search is about discovering that right time to display the right results and to right user.

a) keyword based	b) semantic based
c) contextual search	d) all of the above
- 2) Which of the following method can be used to combine different classifiers?

a) Model stacking	b) Model combining
c) Model structuring	d) Model Ensembling
- 3) Deep learning algorithm improves ability of _____ algorithm to detect complex problems.

a) Support vector machine	b) neural network
c) Naive bays	d) k means
- 4) In neural network, _____ layer encapsulates several complex functions that creates predictors.

a) Input	b) Output
c) Hidden	d) none of these
- 5) Which of the following are examples of predictive analytics?

a) Finding People's buying pattern	b) Pricing goods and services
c) Weather Forecast	d) All of these
- 6) _____ data derives from transactions and can be collected automatically.

a) Streamed	b) Behavioral
c) Attitudinal	d) Demographic data
- 7) The process of _____ involves spotting missing values, duplicate records, and outliers.

a) Data Preprocessing	b) Data Visualization
c) Data Analysis	d) Data Modeling
- 8) The nucleus that makes sense out of big data is called _____.

a) Big Data centre	b) smart data
c) Noise	d) sensible data

- 9) In flocking bird data representation, _____ rules means flock mates move average position of their flock mate.
- a) Separation
 - b) Alignment
 - c) Cohesion
 - d) all of these
- 10) Visualizing data will help you in the very first steps of _____.
- a) data collection
 - b) data preparation
 - c) data modeling
 - d) data testing
- 11) _____ is a method used to predict future numerical value of a variable.
- a) Classification
 - b) Regression
 - c) Clustering
 - d) all of the above
- 12) _____ is used to predict category or group that a new and incoming data object belongs to.
- a) Data clustering
 - b) Data Classification
 - c) Data Regression
 - d) Data Association
- 13) Which algorithm is used for frequent itemset mining?
- a) Decision tree algorithm
 - b) K-nearest neighbors algorithm
 - c) Apriori algorithm
 - d) Naive Bayes algorithm
- 14) Stream of unstructured text data to structured data is example of property called _____.
- a) Data Variety
 - b) Data Velocity
 - c) Data Value
 - d) Data Veracity

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) Explain recommendation system and hybrid recommendation system.
 - b) For modeling customer's behaviour, which data of past is will be required?
 - c) Explain big data and smart data.
 - d) Explain uplift modeling.
- Q.3 Attempt any one. 08**
- a) Compare following data types based on various characteristics
 - i) structured and unstructured data
 - ii) Static and streamed data
 - iii) Attitudinal and Behavioral
 - b) Explain different ways of searching unstructured data.
- Q.4 Attempt the following. 08**
- What is collaborative filtering? Explain various types of collaborative filtering.

Section – II

- Q.5 Attempt any three 12**
- a) Explain hidden Markov model.
 - b) Explain steps of biologically inspired data clustering algorithms.
 - c) Explain clustering and classification model.
 - d) Explain deep learning.

Q.6 Attempt any one

a) Explain Support Vector Machine classification algorithm and ensemble mode.

b) Consider following dataset.

For given instance X = (Childless, old. and High), whether person will buy the car. Find out the prediction using Naive bays algorithm?

Type of family structure	Age group	Income status	Will they buy a car?
Nuclear	Young	Low	Yes
Extended	Old	Low	No
Childless	Middle-aged	Low	No
Childless	Young	Medium	Yes
Single Parent	Middle-aged	Medium	Yes
Childless	Young	Low	No
Nuclear	Old	High	Yes
Nuclear	Middle-aged	Medium	Yes
Extended	Middle-aged	High	Yes
Single Parent	Old	Low	No

Q.7 Attempt the following

Consider following transactions and find Association Rules using apriori algorithm with minimum support 50% and minimum confidence of 60%.

TID	items
T1	I1,I2,I5
T2	I2,I4
T3	I2,I3
T4	I1,I2,I4
T5	I1,I3
T6	I2,I3
T7	I1,I3
T8	I1,I2,I3,I5
T9	I1,I2,I3

- 9) In neural network, _____ layer encapsulates several complex functions that creates predictors.
- a) Input
 - b) Output
 - c) Hidden
 - d) none of these
- 10) Which of the following are examples of predictive analytics?
- a) Finding People's buying pattern
 - b) Pricing goods and services
 - c) Weather Forecast
 - d) All of these
- 11) _____ data derives from transactions and can be collected automatically.
- a) Streamed
 - b) Behavioral
 - c) Attitudinal
 - d) Demographic data
- 12) The process of _____ involves spotting missing values, duplicate records, and outliers.
- a) Data Preprocessing
 - b) Data Visualization
 - c) Data Analysis
 - d) Data Modeling
- 13) The nucleus that makes sense out of big data is called _____.
- a) Big Data centre
 - b) smart data
 - c) Noise
 - d) sensible data
- 14) In flocking bird data representation, _____ rules means flock mates move average position of their flock mate.
- a) Separation
 - b) Alignment
 - c) Cohesion
 - d) all of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Predictive Analytics (BTN05715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three. 12**
- a) Explain recommendation system and hybrid recommendation system.
 - b) For modeling customer's behaviour, which data of past is will be required?
 - c) Explain big data and smart data.
 - d) Explain uplift modeling.
- Q.3 Attempt any one. 08**
- a) Compare following data types based on various characteristics
 - i) structured and unstructured data
 - ii) Static and streamed data
 - iii) Attitudinal and Behavioral
 - b) Explain different ways of searching unstructured data.
- Q.4 Attempt the following. 08**
- What is collaborative filtering? Explain various types of collaborative filtering.

Section – II

- Q.5 Attempt any three 12**
- a) Explain hidden Markov model.
 - b) Explain steps of biologically inspired data clustering algorithms.
 - c) Explain clustering and classification model.
 - d) Explain deep learning.

Q.6 Attempt any one

a) Explain Support Vector Machine classification algorithm and ensemble mode.

b) Consider following dataset.

For given instance $X = (\text{Childless, old. and High})$, whether person will buy the car. Find out the prediction using Naive bays algorithm?

Type of family structure	Age group	Income status	Will they buy a car?
Nuclear	Young	Low	Yes
Extended	Old	Low	No
Childless	Middle-aged	Low	No
Childless	Young	Medium	Yes
Single Parent	Middle-aged	Medium	Yes
Childless	Young	Low	No
Nuclear	Old	High	Yes
Nuclear	Middle-aged	Medium	Yes
Extended	Middle-aged	High	Yes
Single Parent	Old	Low	No

Q.7 Attempt the following

Consider following transactions and find Association Rules using apriori algorithm with minimum support 50% and minimum confidence of 60%.

TID	items
T1	I1,I2,I5
T2	I2,I4
T3	I2,I3
T4	I1,I2,I4
T5	I1,I3
T6	I2,I3
T7	I1,I3
T8	I1,I2,I3,I5
T9	I1,I2,I3

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)

Day & Date: Monday 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ is the process of identifying and extracting opinions and emotions expressed in text data.

a) Text Classification	b) Sentiment Analysis
c) Speech Recognition	d) Text Summarization
- 2) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
 - a) social media posts, and customer review
 - b) queries and requests
 - c) automatically identify and classify named entities
 - d) recognize and transcribe spoken language
- 3) Algorithms are often used in NLP applications to _____.
 - a) Predict solutions readily available
 - b) automatically learn patterns and relationships in language data
 - c) Fix language constructs
 - d) Decide language sequences
- 4) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.

a) Heart	b) Brain
c) Soul	d) Mind
- 5) Sounds produced by the lower lip and upper teeth _____.

a) Bilabial	b) Labiodental
c) Alveolar	d) Palatal
- 6) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.

a) mean	b) boundary
c) median	d) variance

- 7) What is the main challenge/s of NLP?
- a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 8) What is Morphological Segmentation?
- a) identify the class of the morphemes
 - b) Does Discourse Analysis
 - c) Is an extension of propositional logic
 - d) None of the mentioned Algorithms are often used in NLP
- 9) "Rohan Was With Her, They Both Go Together", in the given sentence who is her is unclear, specify the type of Ambiguity?
- a) Anaphoric Ambiguity
 - b) Semantic Ambiguity
 - c) Pragmatic Ambiguity
 - d) Lexical Ambiguity
- 10) Which of the following technique is used to remove semantic ambiguity?
- a) Word Sense Disambiguation
 - b) Fuzzy Logic
 - c) Shallow Semantic Analysis
 - d) Syntactic analysis
- 11) Which of these terms refer to the study of speech process?
- a) Phonetics
 - b) Phonetic substances
 - c) Phonology
 - d) Semantics
- 12) Which of these terms refer to the study of hearing and perception of speech sounds?
- a) Auditory phonetics
 - b) Acoustic phonetics
 - c) Articulatory phonetics
 - d) Laboratory phonetics
- 13) Which algorithm is used for solving temporal probabilistic reasoning?
- a) Hill-climbing search
 - b) Hidden Markov model
 - c) Depth-first search
 - d) Breadth-first search
- 14) Which algorithm works by first running the standard forward pass to compute?
- a) Smoothing
 - b) Modified smoothing
 - c) HMM
 - d) Depth-first search algorithm

Seat No.	
----------	--

Set **P**

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)

Day & Date: Monday 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three:** **12**
- a) List the different theories w.r.t. word analysis.
 - b) Illustrate Top -down parsing algorithm with an appropriate example.
 - c) What is speech processing? State the steps involved.
 - d) What are Worn-net? Give it's characteristics?
 - e) Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two:** **08**
- a) Illustrate the various types of NLP.
 - b) How ML is used to generate a good NLP analytical structure?
 - c) List various applications of NLP. Illustrate any one.
- Q.4 Attempt any one:** **08**
- a) Illustrate the morphology paradigms. How finite state machines help?
 - b) Give the basic characteristics of Morphological diversity in Indian languages.

Section – II

- Q.5 Attempt any three:** **12**
- a) What is Labeling in NLP? Give the steps involved.
 - b) How are graphical models for sequences developed?
 - c) What is phonology? Illustrate.
 - d) Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - e) State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two:** **08**
- a) What is Phonology? What are the methods to deal with it?
 - b) How are semantic relations dealt with in NLP? State various methods.
 - c) Illustrate the working of Sentiment with an example.
- Q.7 Attempt any one:** **08**
- a) What are the components of a Question Answering system in multilingual systems? Illustrate.
 - b) What is CLIR? How does it work?

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)

Day & Date: Monday 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is Morphological Segmentation?
 - a) identify the class of the morphemes
 - b) Does Discourse Analysis
 - c) Is an extension of propositional logic
 - d) None of the mentioned Algorithms are often used in NLP
- 2) "Rohan Was With Her, They Both Go Together", in the given sentence who is her is unclear, specify the type of Ambiguity?
 - a) Anaphoric Ambiguity
 - b) Semantic Ambiguity
 - c) Pragmatic Ambiguity
 - d) Lexical Ambiguity
- 3) Which of the following technique is used to remove semantic ambiguity?
 - a) Word Sense Disambiguation
 - b) Fuzzy Logic
 - c) Shallow Semantic Analysis
 - d) Syntactic analysis
- 4) Which of these terms refer to the study of speech process?
 - a) Phonetics
 - b) Phonetic substances
 - c) Phonology
 - d) Semantics
- 5) Which of these terms refer to the study of hearing and perception of speech sounds?
 - a) Auditory phonetics
 - b) Acoustic phonetics
 - c) Articulatory phonetics
 - d) Laboratory phonetics
- 6) Which algorithm is used for solving temporal probabilistic reasoning?
 - a) Hill-climbing search
 - b) Hidden Markov model
 - c) Depth-first search
 - d) Breadth-first search
- 7) Which algorithm works by first running the standard forward pass to compute?
 - a) Smoothing
 - b) Modified smoothing
 - c) HMM
 - d) Depth-first search algorithm
- 8) _____ is the process of identifying and extracting opinions and emotions expressed in text data.
 - a) Text Classification
 - b) Sentiment Analysis
 - c) Speech Recognition
 - d) Text Summarization

- 9) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
a) social media posts, and customer review
b) queries and requests
c) automatically identify and classify named entities
d) recognize and transcribe spoken language
- 10) Algorithms are often used in NLP applications to _____.
a) Predict solutions readily available
b) automatically learn patterns and relationships in language data
c) Fix language constructs
d) Decide language sequences
- 11) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.
a) Heart
b) Brain
c) Soul
d) Mind
- 12) Sounds produced by the lower lip and upper teeth _____.
a) Bilabial
b) Labiodental
c) Alveolar
d) Palatal
- 13) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.
a) mean
b) boundary
c) median
d) variance
- 14) What is the main challenge/s of NLP?
a) Handling Ambiguity of Sentences
b) Handling Tokenization
c) Handling POS-Tagging
d) All of the mentioned

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)**

Day & Date: Monday 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three:** **12**
- List the different theories w.r.t. word analysis.
 - Illustrate Top -down parsing algorithm with an appropriate example.
 - What is speech processing? State the steps involved.
 - What are Worn-net? Give it's characteristics?
 - Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two:** **08**
- Illustrate the various types of NLP.
 - How ML is used to generate a good NLP analytical structure?
 - List various applications of NLP. Illustrate any one.
- Q.4 Attempt any one:** **08**
- Illustrate the morphology paradigms. How finite state machines help?
 - Give the basic characteristics of Morphological diversity in Indian languages.

Section – II

- Q.5 Attempt any three:** **12**
- What is Labeling in NLP? Give the steps involved.
 - How are graphical models for sequences developed?
 - What is phonology? Illustrate.
 - Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two:** **08**
- What is Phonology? What are the methods to deal with it?
 - How are semantic relations dealt with in NLP? State various methods.
 - Illustrate the working of Sentiment with an example.
- Q.7 Attempt any one:** **08**
- What are the components of a Question Answering system in multilingual systems? Illustrate.
 - What is CLIR? How does it work?

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)

Day & Date: Monday 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three:** **12**
- a) List the different theories w.r.t. word analysis.
 - b) Illustrate Top -down parsing algorithm with an appropriate example.
 - c) What is speech processing? State the steps involved.
 - d) What are Worn-net? Give it's characteristics?
 - e) Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two:** **08**
- a) Illustrate the various types of NLP.
 - b) How ML is used to generate a good NLP analytical structure?
 - c) List various applications of NLP. Illustrate any one.
- Q.4 Attempt any one:** **08**
- a) Illustrate the morphology paradigms. How finite state machines help?
 - b) Give the basic characteristics of Morphological diversity in Indian languages.

Section – II

- Q.5 Attempt any three:** **12**
- a) What is Labeling in NLP? Give the steps involved.
 - b) How are graphical models for sequences developed?
 - c) What is phonology? Illustrate.
 - d) Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - e) State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two:** **08**
- a) What is Phonology? What are the methods to deal with it?
 - b) How are semantic relations dealt with in NLP? State various methods.
 - c) Illustrate the working of Sentiment with an example.
- Q.7 Attempt any one:** **08**
- a) What are the components of a Question Answering system in multilingual systems? Illustrate.
 - b) What is CLIR? How does it work?

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)

Day & Date: Monday 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Word boundary detection is the process of identifying the _____ between words in a stream of spoken or written language.
 - a) mean
 - b) boundary
 - c) median
 - d) variance
- 2) What is the main challenge/s of NLP?
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 3) What is Morphological Segmentation?
 - a) identify the class of the morphemes
 - b) Does Discourse Analysis
 - c) Is an extension of propositional logic
 - d) None of the mentioned Algorithms are often used in NLP
- 4) "Rohan Was With Her, They Both Go Together", in the given sentence who is her is unclear, specify the type of Ambiguity?
 - a) Anaphoric Ambiguity
 - b) Semantic Ambiguity
 - c) Pragmatic Ambiguity
 - d) Lexical Ambiguity
- 5) Which of the following technique is used to remove semantic ambiguity?
 - a) Word Sense Disambiguation
 - b) Fuzzy Logic
 - c) Shallow Semantic Analysis
 - d) Syntactic analysis
- 6) Which of these terms refer to the study of speech process?
 - a) Phonetics
 - b) Phonetic substances
 - c) Phonology
 - d) Semantics
- 7) Which of these terms refer to the study of hearing and perception of speech sounds?
 - a) Auditory phonetics
 - b) Acoustic phonetics
 - c) Articulatory phonetics
 - d) Laboratory phonetics

- 8) Which algorithm is used for solving temporal probabilistic reasoning?
a) Hill-climbing search b) Hidden Markov model
c) Depth-first search d) Breadth-first search
- 9) Which algorithm works by first running the standard forward pass to compute?
a) Smoothing b) Modified smoothing
c) HMM d) Depth-first search algorithm
- 10) _____ is the process of identifying and extracting opinions and emotions expressed in text data.
a) Text Classification b) Sentiment Analysis
c) Speech Recognition d) Text Summarization
- 11) Chatbots and virtual assistants use NLP to understand natural language and provide human-like responses to _____.
a) social media posts, and customer review
b) queries and requests
c) automatically identify and classify named entities
d) recognize and transcribe spoken language
- 12) Algorithms are often used in NLP applications to _____.
a) Predict solutions readily available
b) automatically learn patterns and relationships in language data
c) Fix language constructs
d) Decide language sequences
- 13) Speech processing is a complex and highly coordinated process that involves multiple areas of the _____ working together.
a) Heart b) Brain
c) Soul d) Mind
- 14) Sounds produced by the lower lip and upper teeth _____.
a) Bilabial b) Labiodental
c) Alveolar d) Palatal

Seat No.	
----------	--

Set **S**

Fourth Y. (B Tech) (Sem-II) (Old) (CBCS) Examination: March/April-2024
INFORMATION TECHNOLOGY ENGINEERING
Natural Language Processing (197046807)

Day & Date: Monday 13-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any three:** **12**
- a) List the different theories w.r.t. word analysis.
 - b) Illustrate Top -down parsing algorithm with an appropriate example.
 - c) What is speech processing? State the steps involved.
 - d) What are Worn-net? Give it's characteristics?
 - e) Give the advantage of using 'Word sense disambiguity'.
- Q.3 Attempt any two:** **08**
- a) Illustrate the various types of NLP.
 - b) How ML is used to generate a good NLP analytical structure?
 - c) List various applications of NLP. Illustrate any one.
- Q.4 Attempt any one:** **08**
- a) Illustrate the morphology paradigms. How finite state machines help?
 - b) Give the basic characteristics of Morphological diversity in Indian languages.

Section – II

- Q.5 Attempt any three:** **12**
- a) What is Labeling in NLP? Give the steps involved.
 - b) How are graphical models for sequences developed?
 - c) What is phonology? Illustrate.
 - d) Illustrate the terms 'Precision and Recall' How are they used to compute F- measure?
 - e) State the characteristics of Baum Welch Algorithm.
- Q.6 Attempt any two:** **08**
- a) What is Phonology? What are the methods to deal with it?
 - b) How are semantic relations dealt with in NLP? State various methods.
 - c) Illustrate the working of Sentiment with an example.
- Q.7 Attempt any one:** **08**
- a) What are the components of a Question Answering system in multilingual systems? Illustrate.
 - b) What is CLIR? How does it work?

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System – III (BTN07501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The PU impedance value of an alternator corresponding to base values of 13.2kv & 30 MVA is 0.2pu, the pu value for the base values of 36.4kv & 60 mva will be _____.

a) 0.2pu	b) 0.1pu
c) 0.4pu	d) 0.8pu
- 2) The ohmic impedance of a transmission line having pu impedance of 0.31pu on a base of 100 mva, 220kv is _____.

a) $j150 \Omega$	b) $j100 \Omega$
c) $j31 \Omega$	d) $j0.31 \Omega$
- 3) The constant impedance representation of loads is quite often used in _____.

a) load flow studies	b) stability study
c) security study	d) none of above
- 4) Which of the following reactance of a machine is the smallest?

a) leakage reactance	b) transient reactance
c) sub-transient reactance	d) steady state reactance
- 5) In case of 3-ph. short circuit in a system the power fed in to the system is _____.

a) mostly reactive	b) mostly active
c) active & reactive	d) reactive only
- 6) The time elapsed before the relays detect the fault current is called _____.

a) detection time	b) interrupting time
c) sleep time	d) none of above
- 7) The line current in a 3-ph. System are $I_r = 4 + j6$ $I_y = 2 + j2$ $I_b = -3 - j2$ then zero sequence current is _____.

a) $1 + j2$	b) $9 + j18$
c) $3 + j6$	d) $3 - j6$

- 8) In 3-ph. System the phasor sum of phase currents is zero. Then there will be no _____
- a) positive sequence components
 - b) negative sequence components
 - c) zero sequence components
 - d) none of above
- 9) In the absence of neutral in Y connections the zero sequence currents are _____
- a) maximum
 - b) minimum
 - c) zero
 - d) infinity
- 10) voltage sources are absent in case of _____
- a) positive sequence networks
 - b) negative sequence networks
 - c) zero sequence networks
 - d) both b & c
- 11) the fault where in positive, negative & zero sequence component currents are equal is a _____.
- a) LL fault
 - b) LLG fault
 - c) LG fault
 - d) 3L fault
- 12) For an LL fault the zero sequence current is _____.
- a) infinite
 - b) absent
 - c) $3I_{a1}$
 - d) zero
- 13) The swing equation can be solved using _____.
- a) Carry's EAC
 - b) Runge Kutta's method
 - c) Modified Euler's method
 - d) Step by step method
- 14) The torque angle keeps on increasing with time then the system is _____.
- a) unstable
 - b) marginally stable
 - c) stable
 - d) can't say

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System – III (BTN07501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) With a neat sketch explain the equivalent circuit model for induction motor.
- b) Derive an expression for formation of Ybus by direct method.
- c) Explain the transients on a transmission line due to short circuit.
- d) Draw the PU reactance of the power system the ratings of the components are
 Generator: 15 MVA, 6.6KV, sub transient reactance 12% Transformer: 20MVA, 6.6/66KV reactance 8%
 Transformer: 20MVA, 66/6.6KV reactance 8% motor 1&2: 5MVA, 6.6KV sub transient reactance 20% transmission line has reactance of $j60\Omega$.
- e) The positive, negative & zero sequence components of line currents are 20 L 10A, 6 L 60A & 3 L 30A respectively determine the line currents.

Q.3 Solve any two **12**

- a) Derive an expression for formation of Zbus adding impedance between two existing buses j & k.
- b) Derive an expression for complex power in terms of symmetrical components.
- c) A balanced star connected load takes 30A from a balanced 3-ph. 4 wire supply. If the fuses in two lines are removed, find the symmetrical components of the line currents before & after the fuses are removed.

Section – II

Q.4 Solve any four **16**

- a) Derive an expression for double line to ground fault on an unloaded generator.
- b) Explain the data required for the load flow analysis.
- c) Explain the methods for improving transient stability.
- d) The 3-ph. Generator with line-to-line voltages of 400v is subjected to an LLG fault. If $Z_1 = j2\Omega$, $Z_2 = j0.5\Omega$ and $Z_0 = j0.25\Omega$ determine fault current.
- e) Derive an expression for power flow equations in rectangular form for load flow analysis.

Q.5 Solve any two **12**

- a) Derive an expression for N-R Method for load flow analysis.
- b) Derive an expression for line-to-line fault on an unloaded generator through a fault impedance.
- c) A 3-ph. Generator with an open circuit voltage of 400v is subjected LG fault through a fault impedance of $j2\Omega$. Determine the fault current if $Z_1 = j4\Omega$, $Z_2 = j2\Omega$ & $Z_0 = j1\Omega$ repeat the problem for LLG fault.

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System – III (BTN07501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In 3-ph. System the phasor sum of phase currents is zero. Then there will be no _____.
 - a) positive sequence components
 - b) negative sequence components
 - c) zero sequence components
 - d) none of above
- 2) In the absence of neutral in Y connections the zero sequence currents are _____.
 - a) maximum
 - b) minimum
 - c) zero
 - d) infinity
- 3) voltage sources are absent in case of _____.
 - a) positive sequence networks
 - b) negative sequence networks
 - c) zero sequence networks
 - d) both b & c
- 4) the fault where in positive, negative & zero sequence component currents are equal is a _____.
 - a) LL fault
 - b) LLG fault
 - c) LG fault
 - d) 3L fault
- 5) For an LL fault the zero sequence current is _____.
 - a) infinite
 - b) absent
 - c) $3I_{a1}$
 - d) zero
- 6) The swing equation can be solved using _____.
 - a) Carry's EAC
 - b) Runge Kutta's method
 - c) Modified Euler's method
 - d) Step by step method
- 7) The torque angle keeps on increasing with time then the system is _____.
 - a) unstable
 - b) marginally stable
 - c) stable
 - d) can't say

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System – III (BTN07501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) With a neat sketch explain the equivalent circuit model for induction motor.
- b) Derive an expression for formation of Ybus by direct method.
- c) Explain the transients on a transmission line due to short circuit.
- d) Draw the PU reactance of the power system the ratings of the components are
 Generator: 15 MVA, 6.6KV, sub transient reactance 12% Transformer: 20MVA, 6.6/66KV reactance 8%
 Transformer: 20MVA, 66/6.6KV reactance 8% motor 1&2: 5MVA, 6.6KV sub transient reactance 20% transmission line has reactance of $j60\Omega$.
- e) The positive, negative & zero sequence components of line currents are 20 L10A, 6 L60A & 3 L30A respectively determine the line currents.

Q.3 Solve any two **12**

- a) Derive an expression for formation of Zbus adding impedance between two existing buses j & k.
- b) Derive an expression for complex power in terms of symmetrical components.
- c) A balanced star connected load takes 30A from a balanced 3-ph. 4 wire supply. If the fuses in two lines are removed, find the symmetrical components of the line currents before & after the fuses are removed.

Section – II

Q.4 Solve any four **16**

- a) Derive an expression for double line to ground fault on an unloaded generator.
- b) Explain the data required for the load flow analysis.
- c) Explain the methods for improving transient stability.
- d) The 3-ph. Generator with line-to-line voltages of 400v is subjected to an LLG fault. If $Z_1 = j2\Omega$, $Z_2 = j0.5\Omega$ and $Z_0 = j0.25\Omega$ determine fault current.
- e) Derive an expression for power flow equations in rectangular form for load flow analysis.

Q.5 Solve any two **12**

- a) Derive an expression for N-R Method for load flow analysis.
- b) Derive an expression for line-to-line fault on an unloaded generator through a fault impedance.
- c) A 3-ph. Generator with an open circuit voltage of 400v is subjected LG fault through a fault impedance of $j2\Omega$. Determine the fault current if $Z_1 = j4\Omega$, $Z_2 = j2\Omega$ & $Z_0 = j1\Omega$ repeat the problem for LLG fault.

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System – III (BTN07501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) With a neat sketch explain the equivalent circuit model for induction motor.
- b) Derive an expression for formation of Ybus by direct method.
- c) Explain the transients on a transmission line due to short circuit.
- d) Draw the PU reactance of the power system the ratings of the components are
 Generator: 15 MVA, 6.6KV, sub transient reactance 12% Transformer: 20MVA, 6.6/66KV reactance 8%
 Transformer: 20MVA, 66/6.6KV reactance 8% motor 1&2: 5MVA, 6.6KV sub transient reactance 20% transmission line has reactance of $j60\Omega$.
- e) The positive, negative & zero sequence components of line currents are 20 L 10A, 6 L 60A & 3 L 30A respectively determine the line currents.

Q.3 Solve any two **12**

- a) Derive an expression for formation of Zbus adding impedance between two existing buses j & k.
- b) Derive an expression for complex power in terms of symmetrical components.
- c) A balanced star connected load takes 30A from a balanced 3-ph. 4 wire supply. If the fuses in two lines are removed, find the symmetrical components of the line currents before & after the fuses are removed.

Section – II

Q.4 Solve any four **16**

- a) Derive an expression for double line to ground fault on an unloaded generator.
- b) Explain the data required for the load flow analysis.
- c) Explain the methods for improving transient stability.
- d) The 3-ph. Generator with line-to-line voltages of 400v is subjected to an LLG fault. If $Z_1 = j2\Omega$, $Z_2 = j0.5\Omega$ and $Z_0 = j0.25\Omega$ determine fault current.
- e) Derive an expression for power flow equations in rectangular form for load flow analysis.

Q.5 Solve any two **12**

- a) Derive an expression for N-R Method for load flow analysis.
- b) Derive an expression for line-to-line fault on an unloaded generator through a fault impedance.
- c) A 3-ph. Generator with an open circuit voltage of 400v is subjected LG fault through a fault impedance of $j2\Omega$. Determine the fault current if $Z_1 = j4\Omega$, $Z_2 = j2\Omega$ & $Z_0 = j1\Omega$ repeat the problem for LLG fault.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System – III (BTN07501)

Day & Date: Monday, 13-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data whenever necessary.

Section – I

Q.2 Solve any four **16**

- a) With a neat sketch explain the equivalent circuit model for induction motor.
- b) Derive an expression for formation of Ybus by direct method.
- c) Explain the transients on a transmission line due to short circuit.
- d) Draw the PU reactance of the power system the ratings of the components are
 Generator: 15 MVA, 6.6KV, sub transient reactance 12% Transformer: 20MVA, 6.6/66KV reactance 8%
 Transformer: 20MVA, 66/6.6KV reactance 8% motor 1&2: 5MVA, 6.6KV sub transient reactance 20% transmission line has reactance of $j60\Omega$.
- e) The positive, negative & zero sequence components of line currents are 20 L10A, 6 L60A & 3 L30A respectively determine the line currents.

Q.3 Solve any two **12**

- a) Derive an expression for formation of Zbus adding impedance between two existing buses j & k.
- b) Derive an expression for complex power in terms of symmetrical components.
- c) A balanced star connected load takes 30A from a balanced 3-ph. 4 wire supply. If the fuses in two lines are removed, find the symmetrical components of the line currents before & after the fuses are removed.

Section – II

Q.4 Solve any four **16**

- a) Derive an expression for double line to ground fault on an unloaded generator.
- b) Explain the data required for the load flow analysis.
- c) Explain the methods for improving transient stability.
- d) The 3-ph. Generator with line-to-line voltages of 400v is subjected to an LLG fault. If $Z_1 = j2\Omega$, $Z_2 = j0.5\Omega$ and $Z_0 = j0.25\Omega$ determine fault current.
- e) Derive an expression for power flow equations in rectangular form for load flow analysis.

Q.5 Solve any two **12**

- a) Derive an expression for N-R Method for load flow analysis.
- b) Derive an expression for line-to-line fault on an unloaded generator through a fault impedance.
- c) A 3-ph. Generator with an open circuit voltage of 400v is subjected LG fault through a fault impedance of $j2\Omega$. Determine the fault current if $Z_1 = j4\Omega$, $Z_2 = j2\Omega$ & $Z_0 = j1\Omega$ repeat the problem for LLG fault.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The Bode plot is applicable to _____ phase network
 - a) All
 - b) Maximum
 - c) Minimum
 - d) None of these
- 2) _____ increases the steady state accuracy.
 - a) Integrator
 - b) Differentiator
 - c) Phase lead compensator
 - d) Phase lag compensator
- 3) By which of the following the system response can be tested better?
 - a) Ramp input signal
 - b) Sinusoidal input signal
 - c) Unit impulse input signal
 - d) Exponentially decaying signal
- 4) Regenerative feedback implies feedback with
 - a) oscillations
 - b) step input
 - c) negative sign
 - d) positive sign
- 5) Which of the following should be done to make an unstable system stable?
 - a) The gain of the system should be decreased
 - b) The gain of the system should be increased
 - c) The number of poles to the loop transfer function should be increased
 - d) The number of zeros to the loop transfer function should be increased
- 6) By which of the following the system response can be tested better?
 - a) Ramp input signal
 - b) Sinusoidal input signal
 - c) Unit impulse input signal
 - d) Exponentially decaying signal
- 7) A controller, essentially, is a _____
 - a) sensor
 - b) clipper
 - c) comparator
 - d) amplifier
- 8) Static Error Coefficient are used as a measure of effectiveness of closed loop system for specified _____ input signals.
 - a) acceleration
 - b) velocity
 - c) position
 - d) all of above

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)

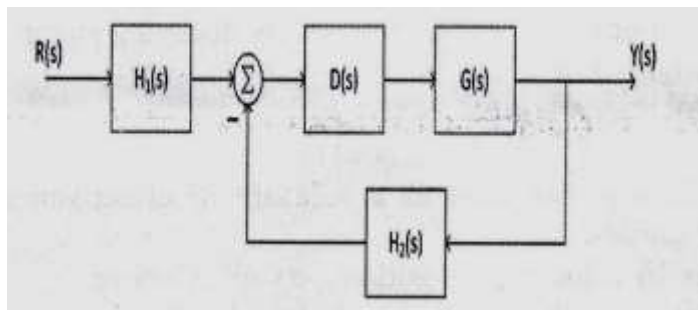
Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

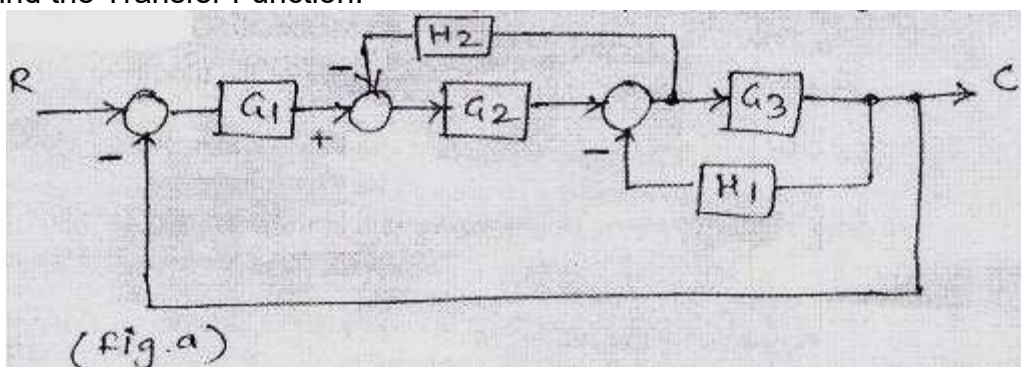
Section – I

Q.2 Attempt any four of the following: 16
 a) Derive the transfer function by Using block diagram reduction technique

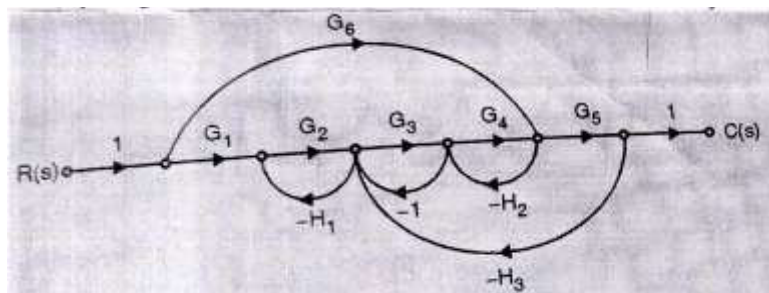


- b) Explain Force Voltage (F-V) Analogy with neat diagram.
- c) Write down the SFG terminologies.
- d) Derive the expression for transfer function of simple feedback system.
- e) Explain different types of control systems

Q.3 Attempt any two of the following: 12
 a) Using Block Diagram Reduction Technique for the system shown in fig a. Find the Transfer Function.



b) By using Mason's Gain formula find the transfer function of the system below.



c) Discuss the effect of parameter variations on control system.

Section – II

Q.4 Attempt any four of the following: **16**

- a) Name the test signals used in control system.
- b) The characteristic equation of a feedback control system is $s^4 + 8s^3 + 18s^2 + 16s + 5 = 0$ Comment on stability of the system
- c) What are the different types of controllers?
- d) How stability is related to location of pole? Explain in detail.
- e) The closed loop transfer function of unity feedback system is
$$\frac{C(s)}{R(s)} = \frac{600}{s^2 + 70s + 600}$$
 Determine nature of damping in the system and natural frequency of oscillations.

Q.5 Attempt any two of the following. **12**

- a) Sketch the root locus for the control system given below:

$$G(s)H(s) = \frac{k}{s(s+3)(s+6)}$$
 Comment on stability.
- b) Plot the Bode diagram for the following transfer function and obtain the Gain Margin and Phase Margin Comment on stability.

$$G(s)H(s) = \frac{4}{s(1 + 0.5s)(1 + 0.08s)}$$
- c) A unity feedback system has $G(s) = \frac{100(s+12)}{(s+4)(s+5)}$
 - i) Type of system
 - ii) All error constants
 - iii) Steady state Error when subjected to input '4t'

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Static Error Coefficient are used as a measure of effectiveness of closed loop system for specified _____ input signals.
 - a) acceleration
 - b) velocity
 - c) position
 - d) all of above
- 2) Control systems are normally designed with damping factor _____.
 - a) Less than unity
 - b) of unity
 - c) of zero
 - d) more than unity
- 3) The angle condition used for checking whether any point lies on root locus or not is _____.
 - a) $\pm(2q + 1)180^\circ$
 - b) $\pm(2q)180^\circ$
 - c) $\pm(2q + 1)360^\circ$
 - d) $\pm(2q)360^\circ$
- 4) For a unity feedback system the position error coefficient is defined as _____.
 - a) $\lim_{s \rightarrow 0} G(s)$
 - b) $\lim_{s \rightarrow 0} SG(s)$
 - c) $\lim_{s \rightarrow 0} \frac{G(s)}{s}$
 - d) none of these
- 5) Slope of K in Bode Magnitude Plot is _____.
 - a) 90°
 - b) 0°
 - c) -90°
 - d) -180°
- 6) Which of the following terms is not a general specification of a control system?
 - a) Nyquist plot
 - b) Phase margin
 - c) Bandwidth
 - d) Time-response
- 7) A synchros is _____.
 - a) a frequency transformer
 - b) an electronic rectifier
 - c) an electromagnetic transducer
 - d) none of the above
- 8) The Bode plot is applicable to _____ phase network
 - a) All
 - b) Maximum
 - c) Minimum
 - d) None of these

- 9) _____ increases the steady state accuracy.
- a) Integrator
 - b) Differentiator
 - c) Phase lead compensator
 - d) Phase lag compensator
- 10) By which of the following the system response can be tested better?
- a) Ramp input signal
 - b) Sinusoidal input signal
 - c) Unit impulse input signal
 - d) Exponentially decaying signal
- 11) Regenerative feedback implies feedback with
- a) oscillations
 - b) step input
 - c) negative sign
 - d) positive sign
- 12) Which of the following should be done to make an unstable system stable?
- a) The gain of the system should be decreased
 - b) The gain of the system should be increased
 - c) The number of poles to the loop transfer function should be increased
 - d) The number of zeros to the loop transfer function should be increased
- 13) By which of the following the system response can be tested better?
- a) Ramp input signal
 - b) Sinusoidal input signal
 - c) Unit impulse input signal
 - d) Exponentially decaying signal
- 14) A controller, essentially, is a _____
- a) sensor
 - b) clipper
 - c) comparator
 - d) amplifier

Seat No.	
----------	--

Set	Q
-----	---

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)**

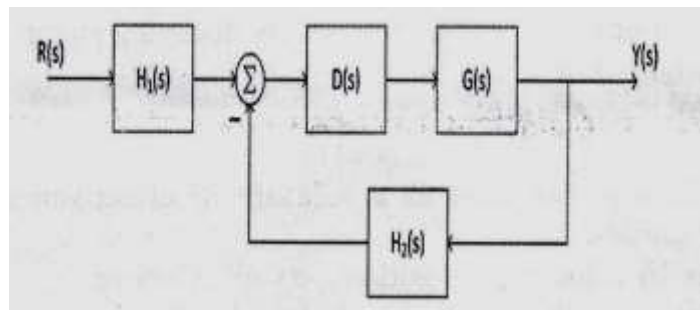
Day & Date: Tuesday, 14-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

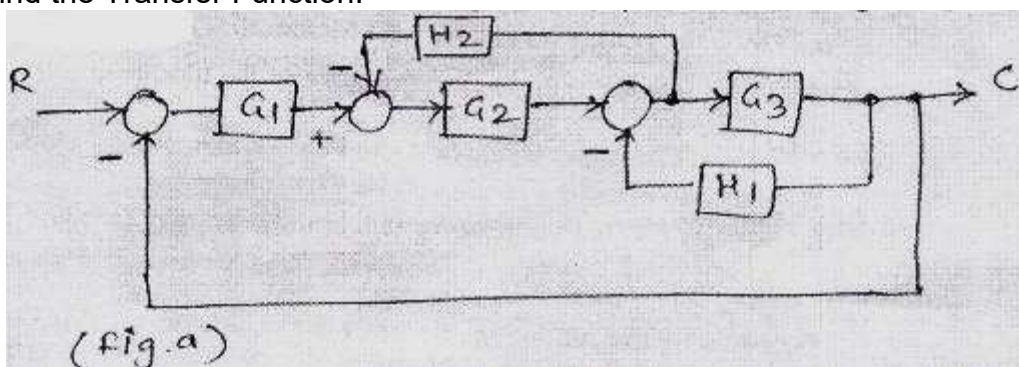
Section – I

Q.2 Attempt any four of the following: **16**
a) Derive the transfer function by Using block diagram reduction technique

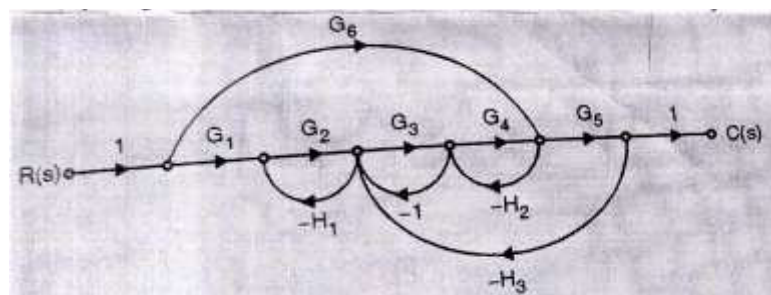


- b) Explain Force Voltage (F-V) Analogy with neat diagram.
- c) Write down the SFG terminologies.
- d) Derive the expression for transfer function of simple feedback system.
- e) Explain different types of control systems

Q.3 Attempt any two of the following: **12**
a) Using Block Diagram Reduction Technique for the system shown in fig a. Find the Transfer Function.



b) By using Mason's Gain formula find the transfer function of the system below.



c) Discuss the effect of parameter variations on control system.

Section – II

Q.4 Attempt any four of the following: **16**

- a) Name the test signals used in control system.
- b) The characteristic equation of a feedback control system is $s^4 + 8s^3 + 18s^2 + 16s + 5 = 0$ Comment on stability of the system
- c) What are the different types of controllers?
- d) How stability is related to location of pole? Explain in detail.
- e) The closed loop transfer function of unity feedback system is
$$\frac{C(s)}{R(s)} = \frac{600}{s^2 + 70s + 600}$$
 Determine nature of damping in the system and natural frequency of oscillations.

Q.5 Attempt any two of the following. **12**

- a) Sketch the root locus for the control system given below:

$$G(s)H(s) = \frac{k}{s(s+3)(s+6)}$$
 Comment on stability.
- b) Plot the Bode diagram for the following transfer function and obtain the Gain Margin and Phase Margin Comment on stability.

$$G(s)H(s) = \frac{4}{s(1 + 0.5s)(1 + 0.08s)}$$
- c) A unity feedback system has $G(s) = \frac{100(s+12)}{(s+4)(s+5)}$
 - i) Type of system
 - ii) All error constants
 - iii) Steady state Error when subjected to input '4t'

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) For a unity feedback system the position error coefficient is defined as _____
 - a) $\lim_{s \rightarrow 0} G(s)$
 - b) $\lim_{s \rightarrow 0} SG(s)$
 - c) $\lim_{s \rightarrow 0} \frac{G(s)}{s}$
 - d) none of these
- 2) Slope of K in Bode Magnitude Plot is _____
 - a) 90°
 - b) 0°
 - c) -90°
 - d) -180°
- 3) Which of the following terms is not a general specification of a control system?
 - a) Nyquist plot
 - b) Phase margin
 - c) Bandwidth
 - d) Time-response
- 4) A synchros is _____.
 - a) a frequency transformer
 - b) an electronic rectifier
 - c) an electromagnetic transducer
 - d) none of the above
- 5) The Bode plot is applicable to _____ phase network
 - a) All
 - b) Maximum
 - c) Minimum
 - d) None of these
- 6) _____ increases the steady state accuracy.
 - a) Integrator
 - b) Differentiator
 - c) Phase lead compensator
 - d) Phase lag compensator
- 7) By which of the following the system response can be tested better?
 - a) Ramp input signal
 - b) Sinusoidal input signal
 - c) Unit impulse input signal
 - d) Exponentially decaying signal
- 8) Regenerative feedback implies feedback with
 - a) oscillations
 - b) step input
 - c) negative sign
 - d) positive sign

- 9) Which of the following should be done to make an unstable system stable?
- The gain of the system should be decreased
 - The gain of the system should be increased
 - The number of poles to the loop transfer function should be increased
 - The number of zeros to the loop transfer function should be increased
- 10) By which of the following the system response can be tested better?
- Ramp input signal
 - Sinusoidal input signal
 - Unit impulse input signal
 - Exponentially decaying signal
- 11) A controller, essentially, is a _____
- sensor
 - clipper
 - comparator
 - amplifier
- 12) Static Error Coefficient are used as a measure of effectiveness of closed loop system for specified _____ input signals.
- acceleration
 - velocity
 - position
 - all of above
- 13) Control systems are normally designed with damping factor _____
- Less than unity
 - of unity
 - of zero
 - more than unity
- 14) The angle condition used for checking whether any point lies on root locus or not is _____.
- $\pm(2q + 1)180^\circ$
 - $\pm(2q)180^\circ$
 - $\pm(2q + 1)360^\circ$
 - $\pm(2q)360^\circ$

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

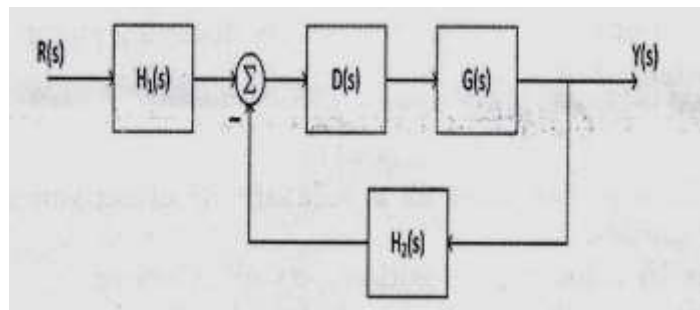
Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any four of the following:

16

a) Derive the transfer function by Using block diagram reduction technique

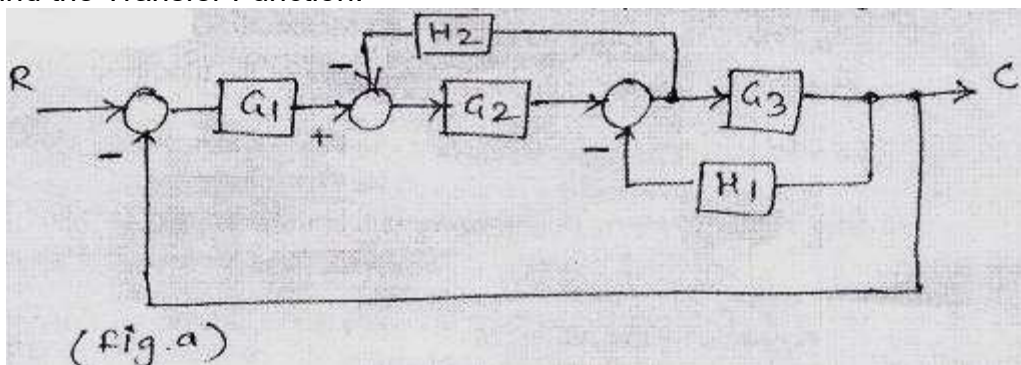


- b) Explain Force Voltage (F-V) Analogy with neat diagram.
- c) Write down the SFG terminologies.
- d) Derive the expression for transfer function of simple feedback system.
- e) Explain different types of control systems

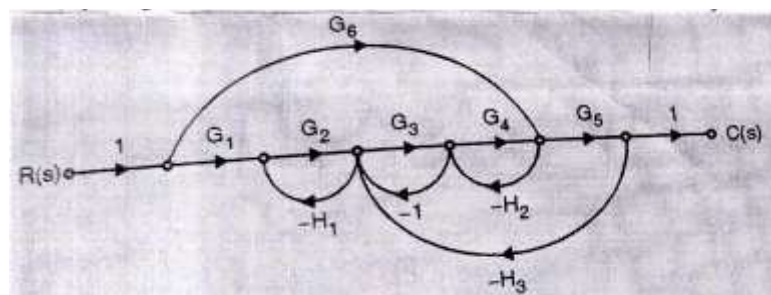
Q.3 Attempt any two of the following:

12

a) Using Block Diagram Reduction Technique for the system shown in fig a. Find the Transfer Function.



b) By using Mason's Gain formula find the transfer function of the system below.



c) Discuss the effect of parameter variations on control system.

Section – II

Q.4 Attempt any four of the following: **16**

- a) Name the test signals used in control system.
- b) The characteristic equation of a feedback control system is $s^4 + 8s^3 + 18s^2 + 16s + 5 = 0$ Comment on stability of the system
- c) What are the different types of controllers?
- d) How stability is related to location of pole? Explain in detail.
- e) The closed loop transfer function of unity feedback system is
$$\frac{C(s)}{R(s)} = \frac{600}{s^2 + 70s + 600}$$
 Determine nature of damping in the system and natural frequency of oscillations.

Q.5 Attempt any two of the following. **12**

- a) Sketch the root locus for the control system given below:

$$G(s)H(s) = \frac{k}{s(s+3)(s+6)}$$
 Comment on stability.
- b) Plot the Bode diagram for the following transfer function and obtain the Gain Margin and Phase Margin Comment on stability.

$$G(s)H(s) = \frac{4}{s(1 + 0.5s)(1 + 0.08s)}$$
- c) A unity feedback system has $G(s) = \frac{100(s+12)}{(s+4)(s+5)}$
 - i) Type of system
 - ii) All error constants
 - iii) Steady state Error when subjected to input '4t'

Seat No.	
----------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)

Day & Date: Tuesday, 14-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) By which of the following the system response can be tested better?
 - a) Ramp input signal
 - b) Sinusoidal input signal
 - c) Unit impulse input signal
 - d) Exponentially decaying signal
- 2) A controller, essentially, is a _____.
 - a) sensor
 - b) clipper
 - c) comparator
 - d) amplifier
- 3) Static Error Coefficient are used as a measure of effectiveness of closed loop system for specified _____ input signals.
 - a) acceleration
 - b) velocity
 - c) position
 - d) all of above
- 4) Control systems are normally designed with damping factor _____.
 - a) Less than unity
 - b) of unity
 - c) of zero
 - d) more than unity
- 5) The angle condition used for checking whether any point lies on root locus or not is _____.
 - a) $\pm(2q + 1)180^\circ$
 - b) $\pm(2q)180^\circ$
 - c) $\pm(2q + 1)360^\circ$
 - d) $\pm(2q)360^\circ$
- 6) For a unity feedback system the position error coefficient is defined as _____.
 - a) $\lim_{s \rightarrow 0} G(s)$
 - b) $\lim_{s \rightarrow 0} SG(s)$
 - c) $\lim_{s \rightarrow 0} \frac{G(s)}{s}$
 - d) none of these
- 7) Slope of K in Bode Magnitude Plot is _____.
 - a) 90°
 - b) 0°
 - c) -90°
 - d) -180°
- 8) Which of the following terms is not a general specification of a control system?
 - a) Nyquist plot
 - b) Phase margin
 - c) Bandwidth
 - d) Time-response

- 9) A synchros is _____.
a) a frequency transformer b) an electronic rectifier
c) an electromagnetic transducer d) none of the above
- 10) The Bode plot is applicable to _____ phase network
a) All b) Maximum
c) Minimum d) None of these
- 11) _____ increases the steady state accuracy.
a) Integrator b) Differentiator
c) Phase lead compensator d) Phase lag compensator
- 12) By which of the following the system response can be tested better?
a) Ramp input signal b) Sinusoidal input signal
c) Unit impulse input signal d) Exponentially decaying signal
- 13) Regenerative feedback implies feedback with
a) oscillations b) step input
c) negative sign d) positive sign
- 14) Which of the following should be done to make an unstable system stable?
a) The gain of the system should be decreased
b) The gain of the system should be increased
c) The number of poles to the loop transfer function should be increased
d) The number of zeros to the loop transfer function should be increased

Seat No.	
----------	--

**T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Linear Control System (BTN07502)**

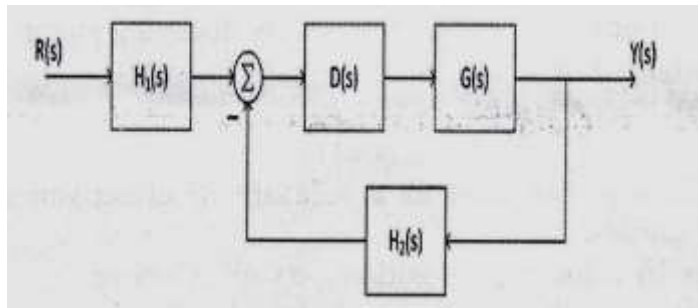
Day & Date: Tuesday, 14-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

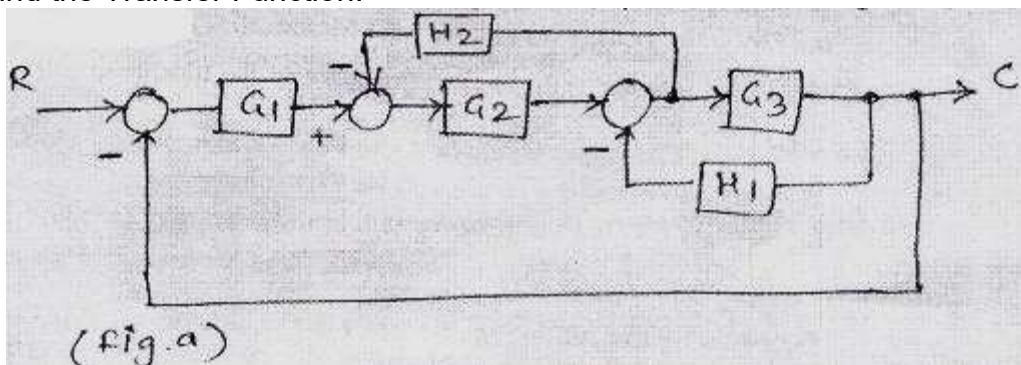
Section – I

- Q.2 Attempt any four of the following:** **16**
a) Derive the transfer function by Using block diagram reduction technique

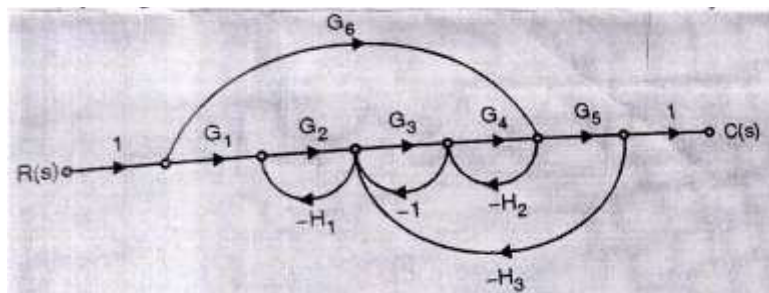


- b) Explain Force Voltage (F-V) Analogy with neat diagram.
c) Write down the SFG terminologies.
d) Derive the expression for transfer function of simple feedback system.
e) Explain different types of control systems

- Q.3 Attempt any two of the following:** **12**
a) Using Block Diagram Reduction Technique for the system shown in fig a. Find the Transfer Function.



- b) By using Mason's Gain formula find the transfer function of the system below.



- c) Discuss the effect of parameter variations on control system.

Section – II

Q.4 Attempt any four of the following: **16**

- a) Name the test signals used in control system.
- b) The characteristic equation of a feedback control system is $s^4 + 8s^3 + 18s^2 + 16s + 5 = 0$ Comment on stability of the system
- c) What are the different types of controllers?
- d) How stability is related to location of pole? Explain in detail.
- e) The closed loop transfer function of unity feedback system is
$$\frac{C(s)}{R(s)} = \frac{600}{s^2 + 70s + 600}$$
 Determine nature of damping in the system and natural frequency of oscillations.

Q.5 Attempt any two of the following. **12**

- a) Sketch the root locus for the control system given below:

$$G(s)H(s) = \frac{k}{s(s+3)(s+6)}$$
 Comment on stability.
- b) Plot the Bode diagram for the following transfer function and obtain the Gain Margin and Phase Margin Comment on stability.

$$G(s)H(s) = \frac{4}{s(1 + 0.5s)(1 + 0.08s)}$$
- c) A unity feedback system has $G(s) = \frac{100(s+12)}{(s+4)(s+5)}$
 - i) Type of system
 - ii) All error constants
 - iii) Steady state Error when subjected to input '4t'

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) For selection of banks the bits used are _____.
 a) PSW. 1 AND PSW. 0 b) PSW. 7 AND PSW. 6
 c) PSW. 3 AND PSW. 4 d) SCON. 4 AND SCON. 3
- 2) Internal pull up resistors are not available for _____.
 a) port 0 b) port 1
 c) port 2 d) port 3
- 3) An alternate function of port pin P3.3 in 8051 microcontroller is _____.
 a) Timer 0 b) Timer 1
 c) Interrupt 0 d) Interrupt 1
- 4) Which pin of the LCD is used for adjusting its contrast?
 a) pin no 1 b) pin no 2
 c) pin no 3 d) pin no
- 5) Address lines are required for accessing the data if memory capacity is 4KB bytes.
 a) 10 b) 11
 c) 12 d) 13
- 6) `MOVC A, @ A + PC` is an example of _____ addressing mode.
 a) Immediate b) Direct
 c) Indexed d) None of these
- 7) ISR ends with _____.
 a) END b) RET
 c) RI, TI d) None
- 8) Number of steps to rotate stepper motor for 180 degree at a step angle of 1.8 degree is _____.
 a) 200 b) 400
 c) 100 d) 300
- 9) JC, JNC instructions checked content of _____ register.
 a) DPTR b) B
 c) A d) PSW

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Compare between microprocessor and microcontroller
- Draw and explain TMOD SFR of 8051 microcontroller.
- Explain with example the various addressing modes of 8051 microcontroller.
- Explain any four Arithmetic instruction of 8051 microcontroller.
- Write an ALP to perform multiplication of two 8-bit numbers stored at 20H and 21H memory location. Store result at 50H and 51H memory location.

Q.3 Solve any two. 12

- Explain IE and IP SFR's related with interrupt in 8051 microcontroller.
- Draw and explain internal memory Structure of RAM in 8051 microcontroller.
- Explain following pins of 8051 microcontroller.
 - EA
 - PSEN
 - ALE
 - RESET

Section – II

Q.4 Solve any four. 16

- Explain the features of PIC 16F877.
- Explain the architecture of ARM Processor.
- Draw the interfacing diagram of LM35 with 8051 Microcontroller.
- Draw and explain Status Register of PIC 16F877A.
- Explain following pins of LCD
 - RS
 - R/W
 - Enable
 - VEE

Q.5 Solve any two. 12

- Draw the interfacing diagram of 4KB data RAM with 8051 microcontroller also mention starting and ending addresses of interfaces memory.
- Draw and explain interfacing diagram of 8051 microcontroller with ADC 0809.
- Draw the interfacing diagram of stepper motor with 8051. Write an ALP to rotate the stepper motor one revolution in anticlockwise direction and then stop.

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Compare between microprocessor and microcontroller
- Draw and explain TMOD SFR of 8051 microcontroller.
- Explain with example the various addressing modes of 8051 microcontroller.
- Explain any four Arithmetic instruction of 8051 microcontroller.
- Write an ALP to perform multiplication of two 8-bit numbers stored at 20H and 21H memory location. Store result at 50H and 51H memory location.

Q.3 Solve any two. 12

- Explain IE and IP SFR's related with interrupt in 8051 microcontroller.
- Draw and explain internal memory Structure of RAM in 8051 microcontroller.
- Explain following pins of 8051 microcontroller.
 - EA
 - PSEN
 - ALE
 - RESET

Section – II

Q.4 Solve any four. 16

- Explain the features of PIC 16F877.
- Explain the architecture of ARM Processor.
- Draw the interfacing diagram of LM35 with 8051 Microcontroller.
- Draw and explain Status Register of PIC 16F877A.
- Explain following pins of LCD
 - RS
 - R/W
 - Enable
 - VEE

Q.5 Solve any two. 12

- Draw the interfacing diagram of 4KB data RAM with 8051 microcontroller also mention starting and ending addresses of interfaces memory.
- Draw and explain interfacing diagram of 8051 microcontroller with ADC 0809.
- Draw the interfacing diagram of stepper motor with 8051. Write an ALP to rotate the stepper motor one revolution in anticlockwise direction and then stop.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) LM35 has how many pins?

a) 2	b) 1
c) 3	d) 4
- 2) What is the standard form of ARM?

a) Advanced RISC Machine	b) Automatic RISC Machine
c) Automatic RISC Motor	d) None of the above
- 3) PIC 16F877 A consists of _____ KB flash program memory.

a) 2	b) 4
c) 8	d) None of these
- 4) For writing commands on an LCD, RS bit is _____.

a) set	b) reset
c) set & reset	d) none of the mentioned
- 5) For selection of banks the bits used are _____.

a) PSW. 1 AND PSW. 0	b) PSW. 7 AND PSW. 6
c) PSW. 3 AND PSW. 4	d) SCON. 4 AND SCON. 3
- 6) Internal pull up resistors are not available for _____.

a) port 0	b) port 1
c) port 2	d) port 3
- 7) An alternate function of port pin P3.3 in 8051 microcontroller is _____.

a) Timer 0	b) Timer 1
c) Interrupt 0	d) Interrupt 1
- 8) Which pin of the LCD is used for adjusting its contrast?

a) pin no 1	b) pin no 2
c) pin no 3	d) pin no
- 9) Address lines are required for accessing the data if memory capacity is 4KB bytes.

a) 10	b) 11
c) 12	d) 13

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Compare between microprocessor and microcontroller
- Draw and explain TMOD SFR of 8051 microcontroller.
- Explain with example the various addressing modes of 8051 microcontroller.
- Explain any four Arithmetic instruction of 8051 microcontroller.
- Write an ALP to perform multiplication of two 8-bit numbers stored at 20H and 21H memory location. Store result at 50H and 51H memory location.

Q.3 Solve any two. 12

- Explain IE and IP SFR's related with interrupt in 8051 microcontroller.
- Draw and explain internal memory Structure of RAM in 8051 microcontroller.
- Explain following pins of 8051 microcontroller.
 - EA
 - PSEN
 - ALE
 - RESET

Section – II

Q.4 Solve any four. 16

- Explain the features of PIC 16F877.
- Explain the architecture of ARM Processor.
- Draw the interfacing diagram of LM35 with 8051 Microcontroller.
- Draw and explain Status Register of PIC 16F877A.
- Explain following pins of LCD
 - RS
 - R/W
 - Enable
 - VEE

Q.5 Solve any two. 12

- Draw the interfacing diagram of 4KB data RAM with 8051 microcontroller also mention starting and ending addresses of interfaces memory.
- Draw and explain interfacing diagram of 8051 microcontroller with ADC 0809.
- Draw the interfacing diagram of stepper motor with 8051. Write an ALP to rotate the stepper motor one revolution in anticlockwise direction and then stop.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) MOVC A, @ A + PC is an example of _____ addressing mode.
 - a) Immediate
 - b) Direct
 - c) Indexed
 - d) None of these
- 2) ISR ends with _____.
 - a) END
 - b) RET
 - c) RI, TI
 - d) None
- 3) Number of steps to rotate stepper motor for 180 degree at a step angle of 1.8 degree is _____.
 - a) 200
 - b) 400
 - c) 100
 - d) 300
- 4) JC, JNC instructions checked content of _____ register.
 - a) DPTR
 - b) B
 - c) A
 - d) PSW
- 5) In PIC 16F877 Port C and D are _____ & _____ bits wide respectively.
 - a) 6, 3
 - b) 3, 8
 - c) 8, 8
 - d) 6, 8
- 6) LM35 has how many pins?
 - a) 2
 - b) 1
 - c) 3
 - d) 4
- 7) What is the standard form of ARM?
 - a) Advanced RISC Machine
 - b) Automatic RISC Machine
 - c) Automatic RISC Motor
 - d) None of the above
- 8) PIC 16F877 A consists of _____ KB flash program memory.
 - a) 2
 - b) 4
 - c) 8
 - d) None of these
- 9) For writing commands on an LCD, RS bit is _____.
 - a) set
 - b) reset
 - c) set & reset
 - d) none of the mentioned

- 10)** For selection of banks the bits used are _____.
a) PSW. 1 AND PSW. 0 b) PSW. 7 AND PSW. 6
c) PSW. 3 AND PSW. 4 d) SCON. 4 AND SCON. 3
- 11)** Internal pull up resistors are not available for _____.
a) port 0 b) port 1
c) port 2 d) port 3
- 12)** An alternate function of port pin P3.3 in 8051 microcontroller is _____.
a) Timer 0 b) Timer 1
c) Interrupt 0 d) Interrupt 1
- 13)** Which pin of the LCD is used for adjusting its contrast?
a) pin no 1 b) pin no 2
c) pin no 3 d) pin no
- 14)** Address lines are required for accessing the data if memory capacity is 4KB bytes.
a) 10 b) 11
c) 12 d) 13

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Microcontroller System (BTN07503)

Day & Date: Wednesday, 15-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Compare between microprocessor and microcontroller
- Draw and explain TMOD SFR of 8051 microcontroller.
- Explain with example the various addressing modes of 8051 microcontroller.
- Explain any four Arithmetic instruction of 8051 microcontroller.
- Write an ALP to perform multiplication of two 8-bit numbers stored at 20H and 21H memory location. Store result at 50H and 51H memory location.

Q.3 Solve any two. 12

- Explain IE and IP SFR's related with interrupt in 8051 microcontroller.
- Draw and explain internal memory Structure of RAM in 8051 microcontroller.
- Explain following pins of 8051 microcontroller.
 - EA
 - PSEN
 - ALE
 - RESET

Section – II

Q.4 Solve any four. 16

- Explain the features of PIC 16F877.
- Explain the architecture of ARM Processor.
- Draw the interfacing diagram of LM35 with 8051 Microcontroller.
- Draw and explain Status Register of PIC 16F877A.
- Explain following pins of LCD
 - RS
 - R/W
 - Enable
 - VEE

Q.5 Solve any two. 12

- Draw the interfacing diagram of 4KB data RAM with 8051 microcontroller also mention starting and ending addresses of interfaces memory.
- Draw and explain interfacing diagram of 8051 microcontroller with ADC 0809.
- Draw the interfacing diagram of stepper motor with 8051. Write an ALP to rotate the stepper motor one revolution in anticlockwise direction and then stop.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electromagnetic Engineering (BTN07504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Unit vector is having _____.
 - a) Direction with one magnitude
 - b) Magnitude is one but not direction
 - c) Not both magnitude and direction
 - d) None of above
- 2) The differential volume (dv) in cylindrical coordinate system is given by _____.
 - a) $rdrd\Phi dz$
 - b) $rdrd\Phi dz$
 - c) $rdrd\Phi$
 - d) $rd\Phi dz$
- 3) The potential difference in an open circuit is _____.
 - a) Zero
 - b) Unity
 - c) Infinity
 - d) Circuit does not exist
- 4) To convert spherical coordinate into Cartesian 'x' coordinate, we have relation _____.
 - a) $x = r \sin \theta \cos \varphi$
 - b) $x = r \sin \theta \sin \varphi$
 - c) $x = r \cos \theta \cos \varphi$
 - d) $x = \sin \theta \cos \varphi$
- 5) The relation between field intensity and potential is _____.
 - a) $E = \nabla V$
 - b) $E = -\nabla V$
 - c) $V = \nabla \times E$
 - d) $V = -(\nabla \times E)$
- 6) $A \times B$ is given as _____.
 - a) $A \cos \theta$
 - b) $AB \sin \theta \text{ an}$
 - c) AB
 - d) $AB \cos \theta \text{ an}$
- 7) The electric field intensity is defined a _____.
 - a) Force per unit charge
 - b) Force on a test charge
 - c) Force per unit charge on a test charge
 - d) Product of force and charge
- 8) Coulomb law is employed in _____.
 - a) Electrostatics
 - b) Magnetostatics
 - c) Electromagnetic
 - d) Maxwell theory

- 9) The units of capacitance are _____.
a) volts/coulomb b) coulombs/volt
c) ohms d) henry/Wb
- 10) Capacitance increases with _____.
a) increase in plate area and decrease in distance between the plates
b) increase in plate area and distance between the plates
c) decrease in plate area and value of applied voltage
d) reduction in plate area and distance between the plates
- 11) Magnetic vector potential for volume current is expressed as _____.
a) $B = \nabla \times A$ b) $A = \nabla \times B$
c) $B = \nabla \cdot A$ d) $A = \nabla \cdot B$
- 12) $\nabla \times H = J$ is known as _____.
a) Maxwell's equation b) Ampere's law
c) Ohm's law d) Gauss's law
- 13) Lorentz force equation is _____.
a) $F = Q \times [E + V \times B]$ b) $F = Q[E + V \times B]$
c) $F = QV + E \times B$ d) $F = Q[B + V \times E]$
- 14) The magnetic energy of a magnetic material is given by _____.
a) $BH/2$ b) $B/2H$
c) $H/2B$ d) B/H

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electromagnetic Engineering (BTN07504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four: **16**

- If $\phi = 3x^2y - y^3z^2$ find the gradient of ϕ at point (1, -2, 1)
- Derive the relation between E and V.
- Derive continuity equation of a current.
- Parallel plate capacitor has conducting plates of area 0.04m^2 . The plates are separated by a dielectric material whose relative permittivity is 2 with plate separation of 1 cm.
Find:
 - Its capacitance
 - Charge on plates if $V = 10\text{V}$
- Transform $A = 3a_x + 4a_y + 5a_z$ to Spherical coordinate system at point (3, 4, 5)

Q.3 Solve any Two: **12**

- If $D = 4x^3a_x - 2ya_y + 2za_z$. Find total charge enclosed within the region $-1 \leq x, y, z \leq 1$.
- State Gauss law with mathematical expression and it's any two applications in detail.
- Three-point charges $Q_1 = 10^{-6}\text{C}$, $Q_2 = 10^{-6}\text{C}$, $Q_3 = 0.5 \times 10^{-6}\text{C}$, are located at corners of equilateral triangle of 50 cm side. Determine magnitude and direction of force on Q_3 .

Section – II

Q.4 Solve any Four: **16**

- A current filament of $3a_x$ lies along x axis. Find H component at P(-1, 3, 2).
- State and prove Ampere's circuital law in point form.
- Explain vector magnetic potential.
- Derive Maxwell's equation in point and integral form from Gauss law for static electric field.
- Derive expression for force on a wire carrying a current.

Q.5 Solve any Two: **12**

- Derive expression for boundary conditions in magnetic field.
- Evaluate both sides of Stroke's theorem for the field $H = (y^2z/x)a_x + (0.5y^2z^2/x^2)az$ and find current in a_y direction crossing the square surface in the plane $y = 2$, bounded by $x = z = 1$ and $x = z = 2$.
- Derive Magnetic field intensity due to finite length element.

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electromagnetic Engineering (BTN07504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four:** **16**

- a) If $\phi = 3x^2y - y^3z^2$ find the gradient of ϕ at point (1, -2, 1)
- b) Derive the relation between E and V.
- c) Derive continuity equation of a current.
- d) Parallel plate capacitor has conducting plates of area 0.04m^2 . The plates are separated by a dielectric material whose relative permittivity is 2 with plate separation of 1 cm.
Find:
 - i) Its capacitance
 - ii) Charge on plates if $V = 10\text{V}$
- e) Transform $A = 3a_x + 4a_y + 5a_z$ to Spherical coordinate system at point (3, 4, 5)

Q.3 Solve any Two: **12**

- a) If $D = 4x^3a_x - 2ya_y + 2za_z$. Find total charge enclosed within the region $-1 \leq x, y, z \leq 1$.
- b) State Gauss law with mathematical expression and it's any two applications in detail.
- c) Three-point charges $Q_1 = 10^{-6}\text{C}$, $Q_2 = 10^{-6}\text{C}$, $Q_3 = 0.5 \times 10^{-6}\text{C}$, are located at corners of equilateral triangle of 50 cm side. Determine magnitude and direction of force on Q_3 .

Section – II**Q.4 Solve any Four:** **16**

- a) A current filament of $3a_x$ lies along x axis. Find H component at P(-1, 3, 2).
- b) State and prove Ampere's circuital law in point form.
- c) Explain vector magnetic potential.
- d) Derive Maxwell's equation in point and integral form from Gauss law for static electric field.
- e) Derive expression for force on a wire carrying a current.

Q.5 Solve any Two: **12**

- a) Derive expression for boundary conditions in magnetic field.
- b) Evaluate both sides of Stroke's theorem for the field $H = (y^2z/x)a_x + (0.5y^2z^2/x^2)az$ and find current in a_y direction crossing the square surface in the plane $y = 2$, bounded by $x = z = 1$ and $x = z = 2$.
- c) Derive Magnetic field intensity due to finite length element.

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electromagnetic Engineering (BTN07504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four:** **16**

- a) If $\phi = 3x^2y - y^3z^2$ find the gradient of ϕ at point (1, -2, 1)
- b) Derive the relation between E and V.
- c) Derive continuity equation of a current.
- d) Parallel plate capacitor has conducting plates of area 0.04m^2 . The plates are separated by a dielectric material whose relative permittivity is 2 with plate separation of 1 cm.
Find:
 - i) Its capacitance
 - ii) Charge on plates if $V = 10\text{V}$
- e) Transform $A = 3a_x + 4a_y + 5a_z$ to Spherical coordinate system at point (3, 4, 5)

Q.3 Solve any Two: **12**

- a) If $D = 4x^3a_x - 2ya_y + 2za_z$. Find total charge enclosed within the region $-1 \leq x, y, z \leq 1$.
- b) State Gauss law with mathematical expression and it's any two applications in detail.
- c) Three-point charges $Q_1 = 10^{-6}\text{C}$, $Q_2 = 10^{-6}\text{C}$, $Q_3 = 0.5 \times 10^{-6}\text{C}$, are located at corners of equilateral triangle of 50 cm side. Determine magnitude and direction of force on Q_3 .

Section – II**Q.4 Solve any Four:** **16**

- a) A current filament of $3a_x$ lies along x axis. Find H component at P(-1, 3, 2).
- b) State and prove Ampere's circuital law in point form.
- c) Explain vector magnetic potential.
- d) Derive Maxwell's equation in point and integral form from Gauss law for static electric field.
- e) Derive expression for force on a wire carrying a current.

Q.5 Solve any Two: **12**

- a) Derive expression for boundary conditions in magnetic field.
- b) Evaluate both sides of Stroke's theorem for the field $H = (y^2z/x)a_x + (0.5y^2z^2/x^2)az$ and find current in a_y direction crossing the square surface in the plane $y = 2$, bounded by $x = z = 1$ and $x = z = 2$.
- c) Derive Magnetic field intensity due to finite length element.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electromagnetic Engineering (BTN07504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) $A \times B$ is given as _____.
 - a) $A \cos \theta$
 - b) $AB \sin \theta$
 - c) AB
 - d) $AB \cos \theta$
- 2) The electric field intensity is defined as _____.
 - a) Force per unit charge
 - b) Force on a test charge
 - c) Force per unit charge on a test charge
 - d) Product of force and charge
- 3) Coulomb law is employed in _____.
 - a) Electrostatics
 - b) Magnetostatics
 - c) Electromagnetic
 - d) Maxwell theory
- 4) The units of capacitance are _____.
 - a) volts/coulomb
 - b) coulombs/volt
 - c) ohms
 - d) henry/Wb
- 5) Capacitance increases with _____.
 - a) increase in plate area and decrease in distance between the plates
 - b) increase in plate area and distance between the plates
 - c) decrease in plate area and value of applied voltage
 - d) reduction in plate area and distance between the plates
- 6) Magnetic vector potential for volume current is expressed as _____.
 - a) $B = \nabla \times A$
 - b) $A = \nabla \times B$
 - c) $B = \nabla \cdot A$
 - d) $A = \nabla \cdot B$
- 7) $\nabla \times H = J$ is known as _____.
 - a) Maxwell's equation
 - b) Ampere's law
 - c) Ohm's law
 - d) Gauss's law
- 8) Lorentz force equation is _____.
 - a) $F = Q \times [E + V \times B]$
 - b) $F = Q[E + V \times B]$
 - c) $F = QV + E \times B$
 - d) $F = Q[B + V \times E]$

- 9) The magnetic energy of a magnetic material is given by _____.
 a) $BH/2$ b) $B/2H$
 c) $H/2B$ d) B/H
- 10) Unit vector is having _____.
 a) Direction with one magnitude
 b) Magnitude is one but not direction
 c) Not both magnitude and direction
 d) None of above
- 11) The differential volume (dv) in cylindrical coordinate system is given by _____.
 a) $drd\Phi dz$ b) $rdrd\Phi dz$
 c) $rdrd\Phi$ d) $rd\Phi dz$
- 12) The potential difference in an open circuit is _____.
 a) Zero b) Unity
 c) Infinity d) Circuit does not exist
- 13) To convert spherical coordinate into Cartesian 'x' coordinate, we have relation _____.
 a) $x = r \sin \theta \cos \varphi$ b) $x = r \sin \theta \sin \varphi$
 c) $x = r \cos \theta \cos \varphi$ d) $x = \sin \theta \cos \varphi$
- 14) The relation between field intensity and potential is _____.
 a) $E = \nabla V$ b) $E = -\nabla V$
 c) $V = \nabla \times E$ d) $V = -(\nabla \times E)$

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electromagnetic Engineering (BTN07504)

Day & Date: Thursday, 16-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four: 16**

- If $\phi = 3x^2y - y^3z^2$ find the gradient of ϕ at point (1, -2, 1)
- Derive the relation between E and V.
- Derive continuity equation of a current.
- Parallel plate capacitor has conducting plates of area 0.04m^2 . The plates are separated by a dielectric material whose relative permittivity is 2 with plate separation of 1 cm.
Find:
 - Its capacitance
 - Charge on plates if $V = 10\text{V}$
- Transform $A = 3a_x + 4a_y + 5a_z$ to Spherical coordinate system at point (3, 4, 5)

Q.3 Solve any Two: 12

- If $D = 4x^3a_x - 2ya_y + 2za_z$. Find total charge enclosed within the region $-1 \leq x, y, z \leq 1$.
- State Gauss law with mathematical expression and it's any two applications in detail.
- Three-point charges $Q_1 = 10^{-6}\text{C}$, $Q_2 = 10^{-6}\text{C}$, $Q_3 = 0.5 \times 10^{-6}\text{C}$, are located at corners of equilateral triangle of 50 cm side. Determine magnitude and direction of force on Q_3 .

Section – II**Q.4 Solve any Four: 16**

- A current filament of $3a_x$ lies along x axis. Find H component at P(-1, 3, 2).
- State and prove Ampere's circuital law in point form.
- Explain vector magnetic potential.
- Derive Maxwell's equation in point and integral form from Gauss law for static electric field.
- Derive expression for force on a wire carrying a current.

Q.5 Solve any Two: 12

- Derive expression for boundary conditions in magnetic field.
- Evaluate both sides of Stroke's theorem for the field $H = (y^2z/x)a_x + (0.5y^2z^2/x^2)az$ and find current in a_y direction crossing the square surface in the plane $y = 2$, bounded by $x = z = 1$ and $x = z = 2$.
- Derive Magnetic field intensity due to finite length element.

Seat No.	
-------------	--

Set

P

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) One approach to developing a personal set of ethics is to
 - a) Rely solely on one's personal character to determine what action to take
 - b) Stress the importance of rules
 - c) Ignore problems associated with the magnitude of consequences
 - d) Avoid examining the consequences of particular
- 2) Which of the following statements describes ethics?
 - a) Ethics are standard of behavior by which conduct is judged
 - b) Morals are a foundation for ethical behavior
 - c) Ethical values are situation specific and time oriented.
 - d) All of the statements describe ethics
- 3) _____ is a program that serves as an interface between application program and a Set of coordinated and integrated files called a database.

a) DDS	b) DBMS
c) MIS	d) Control
- 4) In _____ system the interaction between various subsystems cannot be defined with certainty.

a) Open System	b) Closed System
c) Deterministic System	d) Probabilistic System
- 5) SDLC stands for
 - a) System Development Life Cycle
 - b) Structure Design Life Cycle
 - c) System Design Life Cycle
 - d) Structure development Life Cycle
- 6) The dimension of the e-commerce that enables commerce across national boundaries called

a) Interactivity	b) Global reach
c) Richness	d) Ubiquity

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) Describe various types of information system.
 - b) Explain e-payment systems with Indian context.
 - c) Explain importance of data management.
 - d) Describe functions of data base and data base management system.
 - e) Explain how IT support people for information System.
 - f) Explain ethical and legal issues in e-business.
- Q.3 Solve any Two 12**
- a) Describe the tactical and strategic benefits of data warehouse, data marts and data centers.
 - b) Explain architecture and emerging computing environments of Information System.
 - c) Describe mobile e-commerce. Also describe major e-commerce mechanisms.

Section – II

- Q.4 Solve any FOUR 16**
- a) Describe features of modern organizational structure.
 - b) Explain major phases in SDLC.
 - c) Explain role of project manager
 - d) Explain project life cycle & software development life cycle.
 - e) Explain green IT practices.
 - f) Distinguish software projects and other engineering projects.
- Q.5 Solve any Two 12**
- a) Explain issues related to workplace behavior and health and how to overcome them.
 - b) Describe trade secrets, copyrights, patents with examples.
 - c) Describe ethical and social issues arose because of IT and IS.

Seat No.	
-------------	--

Set **Q**

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology& Management (BTN07512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The largest component of a web site budget is _____.
 - a) System maintenance
 - b) System development
 - c) Content design and development
 - d) Telecommunications
- 2) A security plan begins with a(n) is
 - a) Security policy
 - b) Risk assessment
 - c) Implementation plan
 - d) Security organization
- 3) Creating multiple versions of information goods & Selling essentially the same product to different market segment at different prices is called _____.
 - a) Versioning
 - b) Bundling
 - c) Transactive content
 - d) Price discrimination
- 4) What is an alternative name for a weak entity?
 - a) Dominant
 - b) Owner
 - c) Child
 - d) All of the above
- 5) Identify which of the following life cycle contains the phases: test case design, test execution, defect tracking, maintenance.
 - a) SDLC
 - b) STLC
 - c) SQLC
 - d) BCL
- 6) Identify the incorrect phase of STLC (Software Testing Life cycle).
 - a) Test closure
 - b) Coding
 - c) Requirement analysis
 - d) Test planning
- 7) Identify the simplest model of SDLC?
 - a) Agile
 - b) RAD
 - c) Waterfall
 - d) Spiral
- 8) One approach to developing a personal set of ethics is to
 - a) Rely solely on one's personal character to determine what action to take
 - b) Stress the importance of rules
 - c) Ignore problems associated with the magnitude of consequences
 - d) Avoid examining the consequences of particular

- 9) Which of the following statements describes ethics?
- a) Ethics are standard of behavior by which conduct is judged
 - b) Morals are a foundation for ethical behavior
 - c) Ethical values are situation specific and time oriented.
 - d) All of the statements describe ethics
- 10) _____ is a program that serves as an interface between application program and a Set of coordinated and integrated files called a database.
- a) DDS
 - b) DBMS
 - c) MIS
 - d) Control
- 11) In _____ system the interaction between various subsystems cannot be defined with certainty.
- a) Open System
 - b) Closed System
 - c) Deterministic System
 - d) Probabilistic System
- 12) SDLC stands for
- a) System Development Life Cycle
 - b) Structure Design Life Cycle
 - c) System Design Life Cycle
 - d) Structure development Life Cycle
- 13) The dimension of the e-commerce that enables commerce across national boundaries called
- a) Interactivity
 - b) Global reach
 - c) Richness
 - d) Ubiquity
- 14) The primary source of financing during the early years of e-commerce was _____.
- a) Bank loans
 - b) Large retail firms
 - c) Venture capital funds
 - d) Initial public offerings

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) Describe various types of information system.
 - b) Explain e-payment systems with Indian context.
 - c) Explain importance of data management.
 - d) Describe functions of data base and data base management system.
 - e) Explain how IT support people for information System.
 - f) Explain ethical and legal issues in e-business.
- Q.3 Solve any Two 12**
- a) Describe the tactical and strategic benefits of data warehouse, data marts and data centers.
 - b) Explain architecture and emerging computing environments of Information System.
 - c) Describe mobile e-commerce. Also describe major e-commerce mechanisms.

Section – II

- Q.4 Solve any FOUR 16**
- a) Describe features of modern organizational structure.
 - b) Explain major phases in SDLC.
 - c) Explain role of project manager
 - d) Explain project life cycle & software development life cycle.
 - e) Explain green IT practices.
 - f) Distinguish software projects and other engineering projects.
- Q.5 Solve any Two 12**
- a) Explain issues related to workplace behavior and health and how to overcome them.
 - b) Describe trade secrets, copyrights, patents with examples.
 - c) Describe ethical and social issues arose because of IT and IS.

Seat No.	
-------------	--

Set **R**

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

- 1) What is an alternative name for a weak entity?
 - a) Dominant
 - b) Owner
 - c) Child
 - d) All of the above
- 2) Identify which of the following life cycle contains the phases: test case design, test execution, defect tracking, maintenance.
 - a) SDLC
 - b) STLC
 - c) SQLC
 - d) BCL
- 3) Identify the incorrect phase of STLC (Software Testing Life cycle).
 - a) Test closure
 - b) Coding
 - c) Requirement analysis
 - d) Test planning
- 4) Identify the simplest model of SDLC?
 - a) Agile
 - b) RAD
 - c) Waterfall
 - d) Spiral
- 5) One approach to developing a personal set of ethics is to
 - a) Rely solely on one's personal character to determine what action to take
 - b) Stress the importance of rules
 - c) Ignore problems associated with the magnitude of consequences
 - d) Avoid examining the consequences of particular
- 6) Which of the following statements describes ethics?
 - a) Ethics are standard of behavior by which conduct is judged
 - b) Morals are a foundation for ethical behavior
 - c) Ethical values are situation specific and time oriented.
 - d) All of the statements describe ethics
- 7) _____ is a program that serves as an interface between application program and a Set of coordinated and integrated files called a database.
 - a) DDS
 - b) DBMS
 - c) MIS
 - d) Control

- 8) In _____ system the interaction between various subsystems cannot be defined with certainty.
- a) Open System
 - b) Closed System
 - c) Deterministic System
 - d) Probabilistic System
- 9) SDLC stands for
- a) System Development Life Cycle
 - b) Structure Design Life Cycle
 - c) System Design Life Cycle
 - d) Structure development Life Cycle
- 10) The dimension of the e-commerce that enables commerce across national boundaries called
- a) Interactivity
 - b) Global reach
 - c) Richness
 - d) Ubiquity
- 11) The primary source of financing during the early years of e-commerce was _____.
- a) Bank loans
 - b) Large retail firms
 - c) Venture capital funds
 - d) Initial public offerings
- 12) The largest component of a web site budget is _____.
- a) System maintenance
 - b) System development
 - c) Content design and development
 - d) Telecommunications
- 13) A security plan begins with a(n) is
- a) Security policy
 - b) Risk assessment
 - c) Implementation plan
 - d) Security organization
- 14) Creating multiple versions of information goods & Selling essentially the same product to different market segment at different prices is called _____.
- a) Versioning
 - b) Bundling
 - c) Transactive content
 - d) Price discrimination

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) Describe various types of information system.
 - b) Explain e-payment systems with Indian context.
 - c) Explain importance of data management.
 - d) Describe functions of data base and data base management system.
 - e) Explain how IT support people for information System.
 - f) Explain ethical and legal issues in e-business.
- Q.3 Solve any Two 12**
- a) Describe the tactical and strategic benefits of data warehouse, data marts and data centers.
 - b) Explain architecture and emerging computing environments of Information System.
 - c) Describe mobile e-commerce. Also describe major e-commerce mechanisms.

Section – II

- Q.4 Solve any FOUR 16**
- a) Describe features of modern organizational structure.
 - b) Explain major phases in SDLC.
 - c) Explain role of project manager
 - d) Explain project life cycle & software development life cycle.
 - e) Explain green IT practices.
 - f) Distinguish software projects and other engineering projects.
- Q.5 Solve any Two 12**
- a) Explain issues related to workplace behavior and health and how to overcome them.
 - b) Describe trade secrets, copyrights, patents with examples.
 - c) Describe ethical and social issues arose because of IT and IS.

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book. Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) The dimension of the e-commerce that enables commerce across national boundaries called
 - a) Interactivity
 - b) Global reach
 - c) Richness
 - d) Ubiquity
- 2) The primary source of financing during the early years of e-commerce was _____.
 - a) Bank loans
 - b) Large retail firms
 - c) Venture capital funds
 - d) Initial public offerings
- 3) The largest component of a web site budget is _____.
 - a) System maintenance
 - b) System development
 - c) Content design and development
 - d) Telecommunications
- 4) A security plan begins with a(n) is
 - a) Security policy
 - b) Risk assessment
 - c) Implementation plan
 - d) Security organization
- 5) Creating multiple versions of information goods & Selling essentially the same product to different market segment at different prices is called _____.
 - a) Versioning
 - b) Bundling
 - c) Transactive content
 - d) Price discrimination
- 6) What is an alternative name for a weak entity?
 - a) Dominant
 - b) Owner
 - c) Child
 - d) All of the above
- 7) Identify which of the following life cycle contains the phases: test case design, test execution, defect tracking, maintenance.
 - a) SDLC
 - b) STLC
 - c) SQLC
 - d) BCL
- 8) Identify the incorrect phase of STLC (Software Testing Life cycle).
 - a) Test closure
 - b) Coding
 - c) Requirement analysis
 - d) Test planning

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem- I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Information Technology & Management (BTN07512)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) Describe various types of information system.
 - b) Explain e-payment systems with Indian context.
 - c) Explain importance of data management.
 - d) Describe functions of data base and data base management system.
 - e) Explain how IT support people for information System.
 - f) Explain ethical and legal issues in e-business.
- Q.3 Solve any Two 12**
- a) Describe the tactical and strategic benefits of data warehouse, data marts and data centers.
 - b) Explain architecture and emerging computing environments of Information System.
 - c) Describe mobile e-commerce. Also describe major e-commerce mechanisms.

Section – II

- Q.4 Solve any FOUR 16**
- a) Describe features of modern organizational structure.
 - b) Explain major phases in SDLC.
 - c) Explain role of project manager
 - d) Explain project life cycle & software development life cycle.
 - e) Explain green IT practices.
 - f) Distinguish software projects and other engineering projects.
- Q.5 Solve any Two 12**
- a) Explain issues related to workplace behavior and health and how to overcome them.
 - b) Describe trade secrets, copyrights, patents with examples.
 - c) Describe ethical and social issues arose because of IT and IS.

Seat No.	
-------------	--

Set **P**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Ethics is important for _____.
 - a) Non-managerial employees
 - b) Middle-level managers
 - c) Top management
 - d) All of above
- 2) Why business ethics are important?
 - a) It formulates the firm's image and builds the brand
 - b) It influences the buying decision of the customers
 - c) Build confidence within employees
 - d) All of the above
- 3) Which of the following is a basic definition of ethics?
 - a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 4) Which one of the following is not principle business ethics?
 - a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 5) Codes of conduct and codes of ethics _____.
 - a) are formal statements that describe what an organization expects of its employees.
 - b) become necessary only after a company has been in legal trouble.
 - c) are designed for top executives and managers, not regular employees.
 - d) rarely become an effective component of the ethics and compliance program
- 6) Ethics should guide the technology towards _____.
 - a) Political justice
 - b) Cultural justice
 - c) Social justice
 - d) None of the Above

- 7) Most companies begin the process of establishing organizational ethics programs by developing _____.
- a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas
- 8) Which of the following is an example of an area where business ethics apply?
- a) Conduct of international operations
 - b) Nowhere
 - c) In the personal life of staff
 - d) None of the above
- 9) What is meant by the phrase CSR?
- a) Corporate Social Responsibility
 - b) Company Social Responsibility
 - c) Corporate Society Responsibility
 - d) Company Society Responsibility
- 10) The moral principles, standards of behavior, or set of values that guide a person's actions in the workplace is called _____.
- a) Office place ethics
 - b) Factory place ethics
 - c) Behavioral ethics
 - d) Workplace ethics
- 11) Stakeholders are considered more important to an organization when _____.
- a) they can make use of their power on the organization
 - b) they do not emphasize the urgency of their issues
 - c) their issues are not legitimate
 - d) they can express themselves articulately
- 12) Which of the following relating to CSR theories is correct?
- a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organisations to manage community perceptions to survive
- 13) The _____ dimension of social responsibility refers to a business's societal contribution of time, money, and other resources.
- a) Ethical
 - b) Philanthropic
 - c) Volunteerism
 - d) Strategic
- 14) The four types of social responsibility include _____.
- a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the concept of business ethics.
 - b) Explain various principles of business Ethics.
 - c) Write short note on organization for business ethics management.
 - d) Explain in detail about models for decision making.
 - e) What is CSR and why it is needed in Indian business environment?
- Q.3 Solve any two. 12**
- a) Explain normative, descriptive and contemporary ethical theories.
 - b) Write short note on standards of ethical behavior.
 - c) Explain the objectives and importance of CSR.

Section – II

- Q.4 Solve the questions. 16**
- a) State and explain ethical issues in the firm-employee relationship.
 - b) Write short note on business ethics and environmental values.
 - c) Explain ethical issues and CSOs.
 - d) Explain ethical issues in the relation between business and government.
- Q.5 Solve any two. 12**
- a) Describe the IT code of conduct in detail.
 - b) Explain Globalization and CSOs e.
 - c) Write short note on ethical challenges of globalization.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Which of the following is an example of an area where business ethics apply?
 - a) Conduct of international operations
 - b) Nowhere
 - c) In the personal life of staff
 - d) None of the above
- 2) What is meant by the phrase CSR?
 - a) Corporate Social Responsibility
 - b) Company Social Responsibility
 - c) Corporate Society Responsibility
 - d) Company Society Responsibility
- 3) The moral principles, standards of behavior, or set of values that guide a person's actions in the workplace is called _____.
 - a) Office place ethics
 - b) Factory place ethics
 - c) Behavioral ethics
 - d) Workplace ethics
- 4) Stakeholders are considered more important to an organization when _____.
 - a) they can make use of their power on the organization
 - b) they do not emphasize the urgency of their issues
 - c) their issues are not legitimate
 - d) they can express themselves articulately
- 5) Which of the following relating to CSR theories is correct?
 - a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organisations to manage community perceptions to survive
- 6) The _____ dimension of social responsibility refers to a business's societal contribution of time, money, and other resources.
 - a) Ethical
 - b) Philanthropic
 - c) Volunteerism
 - d) Strategic

- 7) The four types of social responsibility include _____.
- a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic
- 8) Ethics is important for _____.
- a) Non-managerial employees
 - b) Middle-level managers
 - c) Top management
 - d) All of above
- 9) Why business ethics are important?
- a) It formulates the firm's image and builds the brand
 - b) It influences the buying decision of the customers
 - c) Build confidence within employees
 - d) All of the above
- 10) Which of the following is a basic definition of ethics?
- a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 11) Which one of the following is not principle business ethics?
- a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 12) Codes of conduct and codes of ethics _____.
- a) are formal statements that describe what an organization expects of its employees.
 - b) become necessary only after a company has been in legal trouble.
 - c) are designed for top executives and managers, not regular employees.
 - d) rarely become an effective component of the ethics and compliance program
- 13) Ethics should guide the technology towards _____.
- a) Political justice
 - b) Cultural justice
 - c) Social justice
 - d) None of the Above
- 14) Most companies begin the process of establishing organizational ethics programs by developing _____.
- a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas

Seat No.	
-----------------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the concept of business ethics.
 - b) Explain various principles of business Ethics.
 - c) Write short note on organization for business ethics management.
 - d) Explain in detail about models for decision making.
 - e) What is CSR and why it is needed in Indian business environment?

- Q.3 Solve any two. 12**
- a) Explain normative, descriptive and contemporary ethical theories.
 - b) Write short note on standards of ethical behavior.
 - c) Explain the objectives and importance of CSR.

Section – II

- Q.4 Solve the questions. 16**
- a) State and explain ethical issues in the firm-employee relationship.
 - b) Write short note on business ethics and environmental values.
 - c) Explain ethical issues and CSOs.
 - d) Explain ethical issues in the relation between business and government.

- Q.5 Solve any two. 12**
- a) Describe the IT code of conduct in detail.
 - b) Explain Globalization and CSOs e.
 - c) Write short note on ethical challenges of globalization.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Stakeholders are considered more important to an organization when _____.
 - a) they can make use of their power on the organization
 - b) they do not emphasize the urgency of their issues
 - c) their issues are not legitimate
 - d) they can express themselves articulately
- 2) Which of the following relating to CSR theories is correct?
 - a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organisations to manage community perceptions to survive
- 3) The _____ dimension of social responsibility refers to a business's societal contribution of time, money, and other resources.
 - a) Ethical
 - b) Philanthropic
 - c) Volunteerism
 - d) Strategic
- 4) The four types of social responsibility include _____.
 - a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic
- 5) Ethics is important for _____.
 - a) Non-managerial employees
 - b) Middle-level managers
 - c) Top management
 - d) All of above
- 6) Why business ethics are important?
 - a) It formulates the firm's image and builds the brand
 - b) It influences the buying decision of the customers
 - c) Build confidence within employees
 - d) All of the above

- 7) Which of the following is a basic definition of ethics?
- a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 8) Which one of the following is not principle business ethics?
- a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 9) Codes of conduct and codes of ethics _____.
- a) are formal statements that describe what an organization expects of its employees.
 - b) become necessary only after a company has been in legal trouble.
 - c) are designed for top executives and managers, not regular employees.
 - d) rarely become an effective component of the ethics and compliance program
- 10) Ethics should guide the technology towards _____.
- a) Political justice
 - b) Cultural justice
 - c) Social justice
 - d) None of the Above
- 11) Most companies begin the process of establishing organizational ethics programs by developing _____.
- a) ethics training programs
 - b) codes of conduct
 - c) ethics enforcement mechanisms
 - d) hidden agendas
- 12) Which of the following is an example of an area where business ethics apply?
- a) Conduct of international operations
 - b) Nowhere
 - c) In the personal life of staff
 - d) None of the above
- 13) What is meant by the phrase CSR?
- a) Corporate Social Responsibility
 - b) Company Social Responsibility
 - c) Corporate Society Responsibility
 - d) Company Society Responsibility
- 14) The moral principles, standards of behavior, or set of values that guide a person's actions in the workplace is called _____.
- a) Office place ethics
 - b) Factory place ethics
 - c) Behavioral ethics
 - d) Workplace ethics

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the concept of business ethics.
 - b) Explain various principles of business Ethics.
 - c) Write short note on organization for business ethics management.
 - d) Explain in detail about models for decision making.
 - e) What is CSR and why it is needed in Indian business environment?
- Q.3 Solve any two. 12**
- a) Explain normative, descriptive and contemporary ethical theories.
 - b) Write short note on standards of ethical behavior.
 - c) Explain the objectives and importance of CSR.

Section – II

- Q.4 Solve the questions. 16**
- a) State and explain ethical issues in the firm-employee relationship.
 - b) Write short note on business ethics and environmental values.
 - c) Explain ethical issues and CSOs.
 - d) Explain ethical issues in the relation between business and government.
- Q.5 Solve any two. 12**
- a) Describe the IT code of conduct in detail.
 - b) Explain Globalization and CSOs e.
 - c) Write short note on ethical challenges of globalization.

Seat
No.

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Ethics should guide the technology towards _____.
 a) Political justice b) Cultural justice
 c) Social justice d) None of the Above

- 2) Most companies begin the process of establishing organizational ethics programs by developing _____.
 a) ethics training programs
 b) codes of conduct
 c) ethics enforcement mechanisms
 d) hidden agendas

- 3) Which of the following is an example of an area where business ethics apply?
 a) Conduct of international operations
 b) Nowhere
 c) In the personal life of staff
 d) None of the above

- 4) What is meant by the phrase CSR?
 a) Corporate Social Responsibility
 b) Company Social Responsibility
 c) Corporate Society Responsibility
 d) Company Society Responsibility

- 5) The moral principles, standards of behavior, or set of values that guide a person's actions in the workplace is called _____.
 a) Office place ethics b) Factory place ethics
 c) Behavioral ethics d) Workplace ethics

- 6) Stakeholders are considered more important to an organization when _____.
 a) they can make use of their power on the organization
 b) they do not emphasize the urgency of their issues
 c) their issues are not legitimate
 d) they can express themselves articulately

- 7) Which of the following relating to CSR theories is correct?
- a) Institutional theory is based on the shareholder concept
 - b) Social contract is the key concept of legitimacy theory
 - c) The key concept of enlightened self-interest is stakeholder relations
 - d) Stakeholder theory requires organisations to manage community perceptions to survive
- 8) The _____ dimension of social responsibility refers to a business's societal contribution of time, money, and other resources.
- a) Ethical
 - b) Philanthropic
 - c) Volunteerism
 - d) Strategic
- 9) The four types of social responsibility include _____.
- a) legal, philanthropic, economic, and ethical
 - b) ethical, moral, social, and economic
 - c) philanthropic, justice, economic, and ethical
 - d) legal, moral, ethical, and economic
- 10) Ethics is important for _____.
- a) Non-managerial employees
 - b) Middle-level managers
 - c) Top management
 - d) All of above
- 11) Why business ethics are important?
- a) It formulates the firm's image and builds the brand
 - b) It influences the buying decision of the customers
 - c) Build confidence within employees
 - d) All of the above
- 12) Which of the following is a basic definition of ethics?
- a) moral guidelines for behavior
 - b) rules for acknowledging the spirit of the law
 - c) rules or principles that define right and wrong conduct
 - d) principles for legal and moral development
- 13) Which one of the following is not principle business ethics?
- a) Principle of universality
 - b) Principle of humanity
 - c) Principle of autonomy
 - d) Principle of dissatisfaction
- 14) Codes of conduct and codes of ethics _____.
- a) are formal statements that describe what an organization expects of its employees.
 - b) become necessary only after a company has been in legal trouble.
 - c) are designed for top executives and managers, not regular employees.
 - d) rarely become an effective component of the ethics and compliance program

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Business Ethics (BTN07514)

Day & Date: Friday, 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the concept of business ethics.
 - b) Explain various principles of business Ethics.
 - c) Write short note on organization for business ethics management.
 - d) Explain in detail about models for decision making.
 - e) What is CSR and why it is needed in Indian business environment?
- Q.3 Solve any two. 12**
- a) Explain normative, descriptive and contemporary ethical theories.
 - b) Write short note on standards of ethical behavior.
 - c) Explain the objectives and importance of CSR.

Section – II

- Q.4 Solve the questions. 16**
- a) State and explain ethical issues in the firm-employee relationship.
 - b) Write short note on business ethics and environmental values.
 - c) Explain ethical issues and CSOs.
 - d) Explain ethical issues in the relation between business and government.
- Q.5 Solve any two. 12**
- a) Describe the IT code of conduct in detail.
 - b) Explain Globalization and CSOs e.
 - c) Write short note on ethical challenges of globalization.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Barometric methods are used to forecast _____.
 a) seasonal variation b) secular trend
 c) cyclical variation d) irregular variation
- 2) Trend projection is an example of which kind of forecasting?
 a) Qualitative b) Time-series
 c) Barometric d) Econometric
- 3) Short run is a period of time over which at least one factor must _____.
 a) Remain flexible b) Remain fixed
 c) Variable d) None of the above
- 4) The relation between physical outputs of a production process to physical inputs is known as _____.
 a) Consumption function b) Utilization function
 c) Production function d) Sales function
- 5) Variable costs are _____.
 a) sunk costs
 b) multiplied by fixed costs
 c) costs that change with the level of production
 d) defined as the change in total cost resulting from the production of an additional unit of output
- 6) Which of the following is not an essential condition of pure competition?
 a) Large number of buyers and sellers
 b) Homogeneous product
 c) Freedom of entry
 d) Absence of transport cost
- 7) Which of the following is the least competitive market structure?
 a) Perfect competition b) Monopolistic competition
 c) Oligopoly d) Monopoly

- 8) Which of the following is the best definition of managerial economics?
Managerial economics is _____.
- a) a distinct field of economic theory
 - b) a field that applies economic theory and the tools of decision science
 - c) a field that combines economic theory and mathematics
 - d) none of the above
- 9) The first stage in the decision process described in the text is to _____.
- a) define the problem
 - b) select the best possible solution
 - c) determine the objective
 - d) identify possible solutions
- 10) The term Managerial economics also refers to _____.
- a) Principles of Management
 - b) Management Accounting
 - c) Applied economics
 - d) Consumer Behavior
- 11) Which of the following would NOT be a determinant of demand?
- a) the price of related goods
 - b) Income
 - c) Tastes
 - d) the prices of the inputs used to produce the good
- 12) When the price is higher than the equilibrium price, _____.
- a) a shortage will exist
 - b) buyers desire to purchase more than is produced
 - c) sellers desire to produce and sell more than buyers wish to purchase
 - d) quantity demanded equals quantity supplied
- 13) If the price elasticity of demand for a good is 0.75 i.e. (less than one), the demand for the good can be described as:
- a) normal
 - b) elastic
 - c) inferior
 - d) inelastic
- 14) Cross elasticity of demand is: _____.
- a) negative for complementary goods
 - b) negative for substitute goods
 - c) unitary for inferior goods
 - d) positive for inferior goods

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Explain the measuring values of market exchange.
- Describe the concept elasticity of demand in detail.
- State and explain the factors affecting price elasticity.
- Explain the concept of economics and managerial economics.
- Explain economics contribution to managerial decision.
- Explain the following terms:
 - Demand
 - Market demand
 - Supply
 - Market equilibrium

Q.3 Solve any two. 12

- Explain the changes of demand and supply on market equilibrium.
- Explain the impact of price elasticity on total revenue and marginal revenue.
- State the difference between Microeconomics and Macroeconomics.

Section – II

Q.4 Solve any four. 16

- Explain breakeven analysis. Also state the limitations of breakeven analysis.
- Describe demand side of market and supply side of market.
- Explain Market Structure. Also state the objectives of market structure.
- Explain graphical method of trend projection demand forecasting.
- Explain Linear Programming (LP). Also state the advantages and limitations of LP Techniques.
- What is production? Explain the concept of production function?

Q.5 Solve any two. 12

- Explain the degree of competition in market.
- Describe Survey Methods for demand forecasting.
- Explain following costs of production:
 - Actual Cost and Opportunity Cost
 - Business and Full Costs
 - Explicit and Implicit/Imputed Costs

Seat No.	
----------	--

Set **Q**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Which of the following is the best definition of managerial economics?
 Managerial economics is _____.
 a) a distinct field of economic theory
 b) a field that applies economic theory and the tools of decision science
 c) a field that combines economic theory and mathematics
 d) none of the above
- 2) The first stage in the decision process described in the text is to _____.
 a) define the problem
 b) select the best possible solution
 c) determine the objective
 d) identify possible solutions
- 3) The term Managerial economics also refers to _____.
 a) Principles of Management b) Management Accounting
 c) Applied economics d) Consumer Behavior
- 4) Which of the following would NOT be a determinant of demand?
 a) the price of related goods
 b) Income
 c) Tastes
 d) the prices of the inputs used to produce the good
- 5) When the price is higher than the equilibrium price, _____.
 a) a shortage will exist
 b) buyers desire to purchase more than is produced
 c) sellers desire to produce and sell more than buyers wish to purchase
 d) quantity demanded equals quantity supplied
- 6) If the price elasticity of demand for a good is 0.75 i.e. (less than one), the demand for the good can be described as:
 a) normal b) elastic
 c) inferior d) inelastic

- 7) Cross elasticity of demand is: _____.
- a) negative for complementary goods
 - b) negative for substitute goods
 - c) unitary for inferior goods
 - d) positive for inferior goods
- 8) Barometric methods are used to forecast _____.
- a) seasonal variation
 - b) secular trend
 - c) cyclical variation
 - d) irregular variation
- 9) Trend projection is an example of which kind of forecasting?
- a) Qualitative
 - b) Time-series
 - c) Barometric
 - d) Econometric
- 10) Short run is a period of time over which at least one factor must _____.
- a) Remain flexible
 - b) Remain fixed
 - c) Variable
 - d) None of the above
- 11) The relation between physical outputs of a production process to physical inputs is known as _____.
- a) Consumption function
 - b) Utilization function
 - c) Production function
 - d) Sales function
- 12) Variable costs are _____.
- a) sunk costs
 - b) multiplied by fixed costs
 - c) costs that change with the level of production
 - d) defined as the change in total cost resulting from the production of an additional unit of output
- 13) Which of the following is not an essential condition of pure competition?
- a) Large number of buyers and sellers
 - b) Homogeneous product
 - c) Freedom of entry
 - d) Absence of transport cost
- 14) Which of the following is the least competitive market structure?
- a) Perfect competition
 - b) Monopolistic competition
 - c) Oligopoly
 - d) Monopoly

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Explain the measuring values of market exchange.
- Describe the concept elasticity of demand in detail.
- State and explain the factors affecting price elasticity.
- Explain the concept of economics and managerial economics.
- Explain economics contribution to managerial decision.
- Explain the following terms:
 - Demand
 - Market demand
 - Supply
 - Market equilibrium

Q.3 Solve any two. 12

- Explain the changes of demand and supply on market equilibrium.
- Explain the impact of price elasticity on total revenue and marginal revenue.
- State the difference between Microeconomics and Macroeconomics.

Section – II

Q.4 Solve any four. 16

- Explain breakeven analysis. Also state the limitations of breakeven analysis.
- Describe demand side of market and supply side of market.
- Explain Market Structure. Also state the objectives of market structure.
- Explain graphical method of trend projection demand forecasting.
- Explain Linear Programming (LP). Also state the advantages and limitations of LP Techniques.
- What is production? Explain the concept of production function?

Q.5 Solve any two. 12

- Explain the degree of competition in market.
- Describe Survey Methods for demand forecasting.
- Explain following costs of production:
 - Actual Cost and Opportunity Cost
 - Business and Full Costs
 - Explicit and Implicit/Imputed Costs

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.

14

- 1) Which of the following would NOT be a determinant of demand?
 - a) the price of related goods
 - b) Income
 - c) Tastes
 - d) the prices of the inputs used to produce the good
- 2) When the price is higher than the equilibrium price, _____.
 - a) a shortage will exist
 - b) buyers desire to purchase more than is produced
 - c) sellers desire to produce and sell more than buyers wish to purchase
 - d) quantity demanded equals quantity supplied
- 3) If the price elasticity of demand for a good is 0.75 i.e. (less than one), the demand for the good can be described as:
 - a) normal
 - b) elastic
 - c) inferior
 - d) inelastic
- 4) Cross elasticity of demand is: _____.
 - a) negative for complementary goods
 - b) negative for substitute goods
 - c) unitary for inferior goods
 - d) positive for inferior goods
- 5) Barometric methods are used to forecast _____.
 - a) seasonal variation
 - b) secular trend
 - c) cyclical variation
 - d) irregular variation
- 6) Trend projection is an example of which kind of forecasting?
 - a) Qualitative
 - b) Time-series
 - c) Barometric
 - d) Econometric
- 7) Short run is a period of time over which at least one factor must _____.
 - a) Remain flexible
 - b) Remain fixed
 - c) Variable
 - d) None of the above

- 8) The relation between physical outputs of a production process to physical inputs is known as _____.
- a) Consumption function b) Utilization function
c) Production function d) Sales function
- 9) Variable costs are _____.
- a) sunk costs
b) multiplied by fixed costs
c) costs that change with the level of production
d) defined as the change in total cost resulting from the production of an additional unit of output
- 10) Which of the following is not an essential condition of pure competition?
- a) Large number of buyers and sellers
b) Homogeneous product
c) Freedom of entry
d) Absence of transport cost
- 11) Which of the following is the least competitive market structure?
- a) Perfect competition b) Monopolistic competition
c) Oligopoly d) Monopoly
- 12) Which of the following is the best definition of managerial economics?
Managerial economics is _____.
- a) a distinct field of economic theory
b) a field that applies economic theory and the tools of decision science
c) a field that combines economic theory and mathematics
d) none of the above
- 13) The first stage in the decision process described in the text is to _____.
- a) define the problem
b) select the best possible solution
c) determine the objective
d) identify possible solutions
- 14) The term Managerial economics also refers to _____.
- a) Principles of Management b) Management Accounting
c) Applied economics d) Consumer Behavior

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- a) Explain the measuring values of market exchange.
- b) Describe the concept elasticity of demand in detail.
- c) State and explain the factors affecting price elasticity.
- d) Explain the concept of economics and managerial economics.
- e) Explain economics contribution to managerial decision.
- f) Explain the following terms:
 - 1) Demand
 - 2) Market demand
 - 3) Supply
 - 4) Market equilibrium

Q.3 Solve any two. 12

- a) Explain the changes of demand and supply on market equilibrium.
- b) Explain the impact of price elasticity on total revenue and marginal revenue.
- c) State the difference between Microeconomics and Macroeconomics.

Section – II

Q.4 Solve any four. 16

- a) Explain breakeven analysis. Also state the limitations of breakeven analysis.
- b) Describe demand side of market and supply side of market.
- c) Explain Market Structure. Also state the objectives of market structure.
- d) Explain graphical method of trend projection demand forecasting.
- e) Explain Linear Programming (LP). Also state the advantages and limitations of LP Techniques.
- f) What is production? Explain the concept of production function?

Q.5 Solve any two. 12

- a) Explain the degree of competition in market.
- b) Describe Survey Methods for demand forecasting.
- c) Explain following costs of production:
 - 1) Actual Cost and Opportunity Cost
 - 2) Business and Full Costs
 - 3) Explicit and Implicit/Imputed Costs

Seat No.	
-------------	--

Set **S**

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer.**14**

- 1) Which of the following is not an essential condition of pure competition?
 - a) Large number of buyers and sellers
 - b) Homogeneous product
 - c) Freedom of entry
 - d) Absence of transport cost

- 2) Which of the following is the least competitive market structure?
 - a) Perfect competition
 - b) Monopolistic competition
 - c) Oligopoly
 - d) Monopoly

- 3) Which of the following is the best definition of managerial economics?
 Managerial economics is _____.
 - a) a distinct field of economic theory
 - b) a field that applies economic theory and the tools of decision science
 - c) a field that combines economic theory and mathematics
 - d) none of the above

- 4) The first stage in the decision process described in the text is to _____.
 - a) define the problem
 - b) select the best possible solution
 - c) determine the objective
 - d) identify possible solutions

- 5) The term Managerial economics also refers to _____.
 - a) Principles of Management
 - b) Management Accounting
 - c) Applied economics
 - d) Consumer Behavior

- 6) Which of the following would NOT be a determinant of demand?
 - a) the price of related goods
 - b) Income
 - c) Tastes
 - d) the prices of the inputs used to produce the good

- 7) When the price is higher than the equilibrium price, _____.
- a) a shortage will exist
 - b) buyers desire to purchase more than is produced
 - c) sellers desire to produce and sell more than buyers wish to purchase
 - d) quantity demanded equals quantity supplied
- 8) If the price elasticity of demand for a good is 0.75 i.e. (less than one), the demand for the good can be described as:
- a) normal
 - b) elastic
 - c) inferior
 - d) inelastic
- 9) Cross elasticity of demand is: _____.
- a) negative for complementary goods
 - b) negative for substitute goods
 - c) unitary for inferior goods
 - d) positive for inferior goods
- 10) Barometric methods are used to forecast _____.
- a) seasonal variation
 - b) secular trend
 - c) cyclical variation
 - d) irregular variation
- 11) Trend projection is an example of which kind of forecasting?
- a) Qualitative
 - b) Time-series
 - c) Barometric
 - d) Econometric
- 12) Short run is a period of time over which at least one factor must _____.
- a) Remain flexible
 - b) Remain fixed
 - c) Variable
 - d) None of the above
- 13) The relation between physical outputs of a production process to physical inputs is known as _____.
- a) Consumption function
 - b) Utilization function
 - c) Production function
 - d) Sales function
- 14) Variable costs are _____.
- a) sunk costs
 - b) multiplied by fixed costs
 - c) costs that change with the level of production
 - d) defined as the change in total cost resulting from the production of an additional unit of output

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Managerial Economics (BTN07515)

Day & Date: Friday 17-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Explain the measuring values of market exchange.
- Describe the concept elasticity of demand in detail.
- State and explain the factors affecting price elasticity.
- Explain the concept of economics and managerial economics.
- Explain economics contribution to managerial decision.
- Explain the following terms:
 - Demand
 - Market demand
 - Supply
 - Market equilibrium

Q.3 Solve any two. 12

- Explain the changes of demand and supply on market equilibrium.
- Explain the impact of price elasticity on total revenue and marginal revenue.
- State the difference between Microeconomics and Macroeconomics.

Section – II

Q.4 Solve any four. 16

- Explain breakeven analysis. Also state the limitations of breakeven analysis.
- Describe demand side of market and supply side of market.
- Explain Market Structure. Also state the objectives of market structure.
- Explain graphical method of trend projection demand forecasting.
- Explain Linear Programming (LP). Also state the advantages and limitations of LP Techniques.
- What is production? Explain the concept of production function?

Q.5 Solve any two. 12

- Explain the degree of competition in market.
- Describe Survey Methods for demand forecasting.
- Explain following costs of production:
 - Actual Cost and Opportunity Cost
 - Business and Full Costs
 - Explicit and Implicit/Imputed Costs

Seat No.	
---------------------	--

Set

P

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The smart grid will help electric company minimize service disruptions.

a) True	b) False
c) Other	d) None
- 2) The smart grid will help electric company restore power more quickly after an outage.

a) True	b) False
c) Other	d) None
- 3) One of the largest returns on investment pertaining to the deployment of advanced sensing and measurement technologies is the reduction of energy theft.

a) True	b) False
c) Other	d) None
- 4) Smart Grid goals include all but the following:
 - a) Potentially reducing our carbon footprint
 - b) Introducing advancements and efficiencies yet to be envisioned
 - c) Assimilate all cultures, all categories of consumers
 - d) Maintaining grid affordability
- 5) Electric vehicles plugged into the grid could potentially help stabilize grids during peak usage times.

a) True	b) False
c) Other	d) None
- 6) "Making the grid smarter" may be achieved by replacing traditional analog components with digital ones and incorporating the computing, IT, sensors and other equipment in electric supply system.

a) True	b) False
c) Other	d) None

- 7) Smart meter is an important element in building the smart grid. These advanced meters _____.
- a) Measure electricity usage in real time.
 - b) Can send data to and from electric companies and their customers.
 - c) Allows companies to give consumers more information about their electricity usage, and communicate current electricity prices.
 - d) All of the above
- 8) Smart Grid technologies are aimed at improvement of _____.
- a) Only Power Transmission System
 - b) Only Power Distribution system
 - c) Both Power Transmission & Distribution System
 - d) Neither Power Transmission nor Power Distribution system
- 9) Distributed intelligence is achieved by means of Sensors and other monitoring devices in remote locations intended for long-term operation in the field.
- a) True
 - b) False
 - c) Other
 - d) None
- 10) Net metering allows consumers who contribute power to the grid to receive credit for at least a portion of that electricity.
- a) True
 - b) False
 - c) Other
 - d) None
- 11) In a Smart Grid ECO System, a normal consumer is expected to be able to turn to _____.
- a) a non-consumer
 - b) a careful consumer
 - c) a Prosumer
 - d) Both careful consumer and Prosumer
- 12) Time of use (TOU) is an energy cost reduction measure that permits consumers to operate during off-peak hours.
- a) True
 - b) False
 - c) Other
 - d) None
- 13) Time of day rate is the rate charged to electric utility customers based on the varying costs of delivering service at different times throughout the day.
- a) True
 - b) False
 - c) Other
 - d) None
- 14) POWERGRID has demonstrated the Smart Grid Technology capabilities in collaboration with various solution providers at _____.
- a) Bengaluru
 - b) Mysore
 - c) Puducherry
 - d) New Delhi

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Solve any four** **16**
- a) Define smart grid concept and explain its necessity.
 - b) Explain the data mining techniques used in smart grid system.
 - c) Explain functions of smart grid components.
 - d) Explain how the automatic meter reading can make the system smarter.
 - e) Write DSM rules.
- Q.3 Solve any two** **12**
- a) Explain the smart substation.
 - b) Write a short note data mining techniques and its applications.
 - c) Explain the stages on evaluation of smart grid.

Section – II

- Q.4 Solve any four** **16**
- a) Explain the role of smart meters to make the system smart.
 - b) Explain smart metering and advantages of it.
 - c) Write the integrated approaches to smart city modeling.
 - d) Write the application of DSO.
 - e) Explain outage management system.
- Q.5 Solve any two** **12**
- a) Explain in briefly the characteristics of distribution grid.
 - b) What is the impact of smart grid component integration on distribution network operation?
 - c) Write a short note on need of Smart grid Management system.

Seat No.	
-------------	--

Set

Q

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Smart Grid technologies are aimed at improvement of _____.
 a) Only Power Transmission System
 b) Only Power Distribution system
 c) Both Power Transmission & Distribution System
 d) Neither Power Transmission nor Power Distribution system
- 2) Distributed intelligence is achieved by means of Sensors and other monitoring devices in remote locations intended for long-term operation in the field.
 a) True
 b) False
 c) Other
 d) None
- 3) Net metering allows consumers who contribute power to the grid to receive credit for at least a portion of that electricity.
 a) True
 b) False
 c) Other
 d) None
- 4) In a Smart Grid ECO System, a normal consumer is expected to be able to turn to _____.
 a) a non-consumer
 b) a careful consumer
 c) a Prosumer
 d) Both careful consumer and Prosumer
- 5) Time of use (TOU) is an energy cost reduction measure that permits consumers to operate during off-peak hours.
 a) True
 b) False
 c) Other
 d) None
- 6) Time of day rate is the rate charged to electric utility customers based on the varying costs of delivering service at different times throughout the day.
 a) True
 b) False
 c) Other
 d) None

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Solve any four** **16**
- a) Define smart grid concept and explain its necessity.
 - b) Explain the data mining techniques used in smart grid system.
 - c) Explain functions of smart grid components.
 - d) Explain how the automatic meter reading can make the system smarter.
 - e) Write DSM rules.
- Q.3 Solve any two** **12**
- a) Explain the smart substation.
 - b) Write a short note data mining techniques and its applications.
 - c) Explain the stages on evaluation of smart grid.

Section – II

- Q.4 Solve any four** **16**
- a) Explain the role of smart meters to make the system smart.
 - b) Explain smart metering and advantages of it.
 - c) Write the integrated approaches to smart city modeling.
 - d) Write the application of DSO.
 - e) Explain outage management system.
- Q.5 Solve any two** **12**
- a) Explain in briefly the characteristics of distribution grid.
 - b) What is the impact of smart grid component integration on distribution network operation?
 - c) Write a short note on need of Smart grid Management system.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In a Smart Grid ECO System, a normal consumer is expected to be able to turn to _____.
 - a) a non-consumer
 - b) a careful consumer
 - c) a Prosumer
 - d) Both careful consumer and Prosumer
- 2) Time of use (TOU) is an energy cost reduction measure that permits consumers to operate during off-peak hours.
 - a) True
 - b) False
 - c) Other
 - d) None
- 3) Time of day rate is the rate charged to electric utility customers based on the varying costs of delivering service at different times throughout the day.
 - a) True
 - b) False
 - c) Other
 - d) None
- 4) POWERGRID has demonstrated the Smart Grid Technology capabilities in collaboration with various solution providers at _____.
 - a) Bengaluru
 - b) Mysore
 - c) Puducherry
 - d) New Delhi
- 5) The smart grid will help electric company minimize service disruptions.
 - a) True
 - b) False
 - c) Other
 - d) None
- 6) The smart grid will help electric company restore power more quickly after an outage.
 - a) True
 - b) False
 - c) Other
 - d) None

- 7) One of the largest returns on investment pertaining to the deployment of advanced sensing and measurement technologies is the reduction of energy theft.
- a) True
 - b) False
 - c) Other
 - d) None
- 8) Smart Grid goals include all but the following:
- a) Potentially reducing our carbon footprint
 - b) Introducing advancements and efficiencies yet to be envisioned
 - c) Assimilate all cultures, all categories of consumers
 - d) Maintaining grid affordability
- 9) Electric vehicles plugged into the grid could potentially help stabilize grids during peak usage times.
- a) True
 - b) False
 - c) Other
 - d) None
- 10) “Making the grid smarter” may be achieved by replacing traditional analog components with digital ones and incorporating the computing, IT, sensors and other equipment in electric supply system.
- a) True
 - b) False
 - c) Other
 - d) None
- 11) Smart meter is an important element in building the smart grid. These advanced meters _____.
- a) Measure electricity usage in real time.
 - b) Can send data to and from electric companies and their customers.
 - c) Allows companies to give consumers more information about their electricity usage, and communicate current electricity prices.
 - d) All of the above
- 12) Smart Grid technologies are aimed at improvement of _____.
- a) Only Power Transmission System
 - b) Only Power Distribution system
 - c) Both Power Transmission & Distribution System
 - d) Neither Power Transmission nor Power Distribution system
- 13) Distributed intelligence is achieved by means of Sensors and other monitoring devices in remote locations intended for long-term operation in the field.
- a) True
 - b) False
 - c) Other
 - d) None
- 14) Net metering allows consumers who contribute power to the grid to receive credit for at least a portion of that electricity.
- a) True
 - b) False
 - c) Other
 - d) None

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Solve any four** **16**
- a) Define smart grid concept and explain its necessity.
 - b) Explain the data mining techniques used in smart grid system.
 - c) Explain functions of smart grid components.
 - d) Explain how the automatic meter reading can make the system smarter.
 - e) Write DSM rules.
- Q.3 Solve any two** **12**
- a) Explain the smart substation.
 - b) Write a short note data mining techniques and its applications.
 - c) Explain the stages on evaluation of smart grid.

Section – II

- Q.4 Solve any four** **16**
- a) Explain the role of smart meters to make the system smart.
 - b) Explain smart metering and advantages of it.
 - c) Write the integrated approaches to smart city modeling.
 - d) Write the application of DSO.
 - e) Explain outage management system.
- Q.5 Solve any two** **12**
- a) Explain in briefly the characteristics of distribution grid.
 - b) What is the impact of smart grid component integration on distribution network operation?
 - c) Write a short note on need of Smart grid Management system.

Seat No.	
---------------------	--

Set **S**

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) "Making the grid smarter" may be achieved by replacing traditional analog components with digital ones and incorporating the computing, IT, sensors and other equipment in electric supply system.
 - a) True
 - b) False
 - c) Other
 - d) None
- 2) Smart meter is an important element in building the smart grid. These advanced meters _____.
 - a) Measure electricity usage in real time.
 - b) Can send data to and from electric companies and their customers.
 - c) Allows companies to give consumers more information about their electricity usage, and communicate current electricity prices.
 - d) All of the above
- 3) Smart Grid technologies are aimed at improvement of _____.
 - a) Only Power Transmission System
 - b) Only Power Distribution system
 - c) Both Power Transmission & Distribution System
 - d) Neither Power Transmission nor Power Distribution system
- 4) Distributed intelligence is achieved by means of Sensors and other monitoring devices in remote locations intended for long-term operation in the field.
 - a) True
 - b) False
 - c) Other
 - d) None
- 5) Net metering allows consumers who contribute power to the grid to receive credit for at least a portion of that electricity.
 - a) True
 - b) False
 - c) Other
 - d) None

- 6) In a Smart Grid ECO System, a normal consumer is expected to be able to turn to _____.
- a) a non-consumer
 - b) a careful consumer
 - c) a Prosumer
 - d) Both careful consumer and Prosumer
- 7) Time of use (TOU) is an energy cost reduction measure that permits consumers to operate during off-peak hours.
- a) True
 - b) False
 - c) Other
 - d) None
- 8) Time of day rate is the rate charged to electric utility customers based on the varying costs of delivering service at different times throughout the day.
- a) True
 - b) False
 - c) Other
 - d) None
- 9) POWERGRID has demonstrated the Smart Grid Technology capabilities in collaboration with various solution providers at _____.
- a) Bengaluru
 - b) Mysore
 - c) Puducherry
 - d) New Delhi
- 10) The smart grid will help electric company minimize service disruptions.
- a) True
 - b) False
 - c) Other
 - d) None
- 11) The smart grid will help electric company restore power more quickly after an outage.
- a) True
 - b) False
 - c) Other
 - d) None
- 12) One of the largest returns on investment pertaining to the deployment of advanced sensing and measurement technologies is the reduction of energy theft.
- a) True
 - b) False
 - c) Other
 - d) None
- 13) Smart Grid goals include all but the following:
- a) Potentially reducing our carbon footprint
 - b) Introducing advancements and efficiencies yet to be envisioned
 - c) Assimilate all cultures, all categories of consumers
 - d) Maintaining grid affordability
- 14) Electric vehicles plugged into the grid could potentially help stabilize grids during peak usage times.
- a) True
 - b) False
 - c) Other
 - d) None

Seat No.	
-----------------	--

Set S

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Smart Energy Management System (BTN07516)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume data wherever necessary.

Section – I

- Q.2 Solve any four** **16**
- a) Define smart grid concept and explain its necessity.
 - b) Explain the data mining techniques used in smart grid system.
 - c) Explain functions of smart grid components.
 - d) Explain how the automatic meter reading can make the system smarter.
 - e) Write DSM rules.
- Q.3 Solve any two** **12**
- a) Explain the smart substation.
 - b) Write a short note data mining techniques and its applications.
 - c) Explain the stages on evaluation of smart grid.

Section – II

- Q.4 Solve any four** **16**
- a) Explain the role of smart meters to make the system smart.
 - b) Explain smart metering and advantages of it.
 - c) Write the integrated approaches to smart city modeling.
 - d) Write the application of DSO.
 - e) Explain outage management system.
- Q.5 Solve any two** **12**
- a) Explain in briefly the characteristics of distribution grid.
 - b) What is the impact of smart grid component integration on distribution network operation?
 - c) Write a short note on need of Smart grid Management system.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In the method of phase control, the phase relationship between _____ & _____ is controlled by varying the firing angle.
 - a) supply current, supply voltage
 - b) end of the load current, end of the load voltage
 - c) start of the load current, start of the load voltage
 - d) load current, load voltage
- 2) In a hybrid electric vehicle one energy source is _____ & the other is a conversion of a _____.

a) combustion, energy to fuel	b) storage, energy to fuel
c) storage, energy to energy	d) storage, fuel to energy
- 3) Dual converters provide _____.

a) two quadrant operation	b) three quadrant operation
c) four quadrant operation	d) none of the mentioned
- 4) In pulse width modulation scheme, _____ is kept constant.

a) V_s	b) T_{on}
c) T	d) T_{off}
- 5) In series hybrid vehicle _____ is coupled with the Internal combustion engine to produce electricity for propulsion.

a) diesel engine	b) generator
c) gas engine	d) hydrogen engine
- 6) What is the duty cycle of a chopper?

a) T_{on}/T_{off}	b) T_{on}/T
c) T/T_{on}	d) $T_{off} \times T_{on}$
- 7) V/f is maintained constant in the following case of speed control of induction motor.
 - a) Below base speed with voltage control
 - b) Below the base speed with frequency control
 - c) Above base speed with frequency control
 - d) None of these

- 8) _____ method relies on keeping V/f ratio constant so as to maintain air gap flux at constant value.
- a) Scalar Control
 - b) Vector Control
 - c) Torque Control
 - d) none of the above
- 9) _____ is a technique that allows you to instantaneously control the motor magnetic flux and its electromagnetic torque in a decoupled way.
- a) Scalar Control
 - b) Vector Control
 - c) Direct Torque Control
 - d) none of the above
- 10) Space vector modulation is responsible for generating pulse width modulated signals to control the switches of an inverter.
- a) generating pulse width modulated signals to control the switches of an inverter
 - b) generating pulse width modulated signals only
 - c) control the switches of an inverter only
 - d) none of the above
- 11) _____ analysis of an IM allows decoupled analysis where the flux and torque component can be independently controlled.
- a) Scalar Control
 - b) Vector Control
 - c) V/F Control
 - d) none of the above
- 12) The Field Oriented Control (FOC) enables the induction machine being controlled alike the _____.
- a) Separately excited DC Machine
 - b) Permanent magnet DC Machine
 - c) Switched reluctance machine
 - d) Stepper motor
- 13) Power split mode of hybrid electric vehicle control uses _____.
- a) Series & Parallel control topology
 - b) Only Series control topology
 - c) Only Parallel control topology
 - d) none of the above
- 14) Which of the following control loops used by Direct torque control?
- a) speed control loop
 - b) torque control loop
 - c) both a & b
 - d) none of the above

Seat No.	
-----------------	--

Set P

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four. 16

- Explain power flow in Hybrid Electric Drive Train System with different modes.
- Explain Time Control Strategy (TRC) in case of Chopper Control.
- Explain with diagram Series Hybrid Electric Drive Train System.
- Describe single phase full wave converter feeding a separately excited dc motor with circuit diagram and waveform.
- Explain principle of phase control in rectifiers.
- Explain the operation of V/F control method of speed control of induction motor drive.

Q.3 Solve any two. 12

- Explain the four-quadrant operation of chopper DC motor drive with suitable waveforms for electric vehicle.
- Explain the procedure how electric motor can be selected for hybrid electric vehicle.
- Describe the use of three phase dual-converter for speed control of dc series motor with appropriate Waveforms.

Section – II

Q.4 Solve any four. 16

- Explain in detail Indirect/Feed forward vector control of induction machine.
- Explain principle of direct vector control of induction machine.
- Explain Vehicle supervisory control in detail.
- Describe the torque expression with stator and rotor fluxes in case of Direct Torque control of Induction machine.
- Explain the hybrid mode of control of electric vehicle.
- Describe space vector modulation control in case of induction machine.

Q.5 Solve any two. 12

- Explain different mode selection strategy of control of electric vehicle.
- Explain in detail theory and dc drive analogy of field oriented control of Induction Machine.
- Explain with block diagram Direct Torque of induction motor.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ method relies on keeping V/f ratio constant so as to maintain air gap flux at constant value.
 - a) Scalar Control
 - b) Vector Control
 - c) Torque Control
 - d) none of the above
- 2) _____ is a technique that allows you to instantaneously control the motor magnetic flux and its electromagnetic torque in a decoupled way.
 - a) Scalar Control
 - b) Vector Control
 - c) Direct Torque Control
 - d) none of the above
- 3) Space vector modulation is responsible for generating pulse width modulated signals to control the switches of an inverter.
 - a) generating pulse width modulated signals to control the switches of an inverter
 - b) generating pulse width modulated signals only
 - c) control the switches of an inverter only
 - d) none of the above
- 4) _____ analysis of an IM allows decoupled analysis where the flux and torque component can be independently controlled.
 - a) Scalar Control
 - b) Vector Control
 - c) V/F Control
 - d) none of the above
- 5) The Field Oriented Control (FOC) enables the induction machine being controlled alike the _____.
 - a) Separately excited DC Machine
 - b) Permanent magnet DC Machine
 - c) Switched reluctance machine
 - d) Stepper motor
- 6) Power split mode of hybrid electric vehicle control uses _____.
 - a) Series & Parallel control topology
 - b) Only Series control topology
 - c) Only Parallel control topology
 - d) none of the above

- 7) Which of the following control loops used by Direct torque control?
a) speed control loop b) torque control loop
c) both a & b d) none of the above
- 8) In the method of phase control, the phase relationship between _____ & _____ is controlled by varying the firing angle.
a) supply current, supply voltage
b) end of the load current, end of the load voltage
c) start of the load current, start of the load voltage
d) load current, load voltage
- 9) In a hybrid electric vehicle one energy source is _____ & the other is a conversion of a _____.
a) combustion, energy to fuel b) storage, energy to fuel
c) storage, energy to energy d) storage, fuel to energy
- 10) Dual converters provide _____.
a) two quadrant operation b) three quadrant operation
c) four quadrant operation d) none of the mentioned
- 11) In pulse width modulation scheme, _____ is kept constant.
a) V_s b) T_{on}
c) T d) T_{off}
- 12) In series hybrid vehicle _____ is coupled with the Internal combustion engine to produce electricity for propulsion.
a) diesel engine b) generator
c) gas engine d) hydrogen engine
- 13) What is the duty cycle of a chopper?
a) T_{on}/T_{off} b) T_{on}/T
c) T/T_{on} d) $T_{off} \times T_{on}$
- 14) V/f is maintained constant in the following case of speed control of induction motor.
a) Below base speed with voltage control
b) Below the base speed with frequency control
c) Above base speed with frequency control
d) None of these

Seat No.	
-----------------	--

Set Q

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four. 16

- Explain power flow in Hybrid Electric Drive Train System with different modes.
- Explain Time Control Strategy (TRC) in case of Chopper Control.
- Explain with diagram Series Hybrid Electric Drive Train System.
- Describe single phase full wave converter feeding a separately excited dc motor with circuit diagram and waveform.
- Explain principle of phase control in rectifiers.
- Explain the operation of V/F control method of speed control of induction motor drive.

Q.3 Solve any two. 12

- Explain the four-quadrant operation of chopper DC motor drive with suitable waveforms for electric vehicle.
- Explain the procedure how electric motor can be selected for hybrid electric vehicle.
- Describe the use of three phase dual-converter for speed control of dc series motor with appropriate Waveforms.

Section – II

Q.4 Solve any four. 16

- Explain in detail Indirect/Feed forward vector control of induction machine.
- Explain principle of direct vector control of induction machine.
- Explain Vehicle supervisory control in detail.
- Describe the torque expression with stator and rotor fluxes in case of Direct Torque control of Induction machine.
- Explain the hybrid mode of control of electric vehicle.
- Describe space vector modulation control in case of induction machine.

Q.5 Solve any two. 12

- Explain different mode selection strategy of control of electric vehicle.
- Explain in detail theory and dc drive analogy of field oriented control of Induction Machine.
- Explain with block diagram Direct Torque of induction motor.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
 Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) _____ analysis of an IM allows decoupled analysis where the flux and torque component can be independently controlled.
 - a) Scalar Control
 - b) Vector Control
 - c) V/F Control
 - d) none of the above
- 2) The Field Oriented Control (FOC) enables the induction machine being controlled alike the _____.
 - a) Separately excited DC Machine
 - b) Permanent magnet DC Machine
 - c) Switched reluctance machine
 - d) Stepper motor
- 3) Power split mode of hybrid electric vehicle control uses _____.
 - a) Series & Parallel control topology
 - b) Only Series control topology
 - c) Only Parallel control topology
 - d) none of the above
- 4) Which of the following control loops used by Direct torque control?
 - a) speed control loop
 - b) torque control loop
 - c) both a & b
 - d) none of the above
- 5) In the method of phase control, the phase relationship between _____ & _____ is controlled by varying the firing angle.
 - a) supply current, supply voltage
 - b) end of the load current, end of the load voltage
 - c) start of the load current, start of the load voltage
 - d) load current, load voltage
- 6) In a hybrid electric vehicle one energy source is _____ & the other is a conversion of a _____.
 - a) combustion, energy to fuel
 - b) storage, energy to fuel
 - c) storage, energy to energy
 - d) storage, fuel to energy

- 7) Dual converters provide _____.
a) two quadrant operation b) three quadrant operation
c) four quadrant operation d) none of the mentioned
- 8) In pulse width modulation scheme, _____ is kept constant.
a) V_s b) T_{on}
c) T d) T_{off}
- 9) In series hybrid vehicle _____ is coupled with the Internal combustion engine to produce electricity for propulsion.
a) diesel engine b) generator
c) gas engine d) hydrogen engine
- 10) What is the duty cycle of a chopper?
a) T_{on}/T_{off} b) T_{on}/T
c) T/T_{on} d) $T_{off} \times T_{on}$
- 11) V/f is maintained constant in the following case of speed control of induction motor.
a) Below base speed with voltage control
b) Below the base speed with frequency control
c) Above base speed with frequency control
d) None of these
- 12) _____ method relies on keeping V/f ratio constant so as to maintain air gap flux at constant value.
a) Scalar Control b) Vector Control
c) Torque Control d) none of the above
- 13) _____ is a technique that allows you to instantaneously control the motor magnetic flux and its electromagnetic torque in a decoupled way.
a) Scalar Control b) Vector Control
c) Direct Torque Control d) none of the above
- 14) Space vector modulation is responsible for generating pulse width modulated signals to control the switches of an inverter.
a) generating pulse width modulated signals to control the switches of an inverter
b) generating pulse width modulated signals only
c) control the switches of an inverter only
d) none of the above

Seat No.	
-----------------	--

Set R

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four. 16

- Explain power flow in Hybrid Electric Drive Train System with different modes.
- Explain Time Control Strategy (TRC) in case of Chopper Control.
- Explain with diagram Series Hybrid Electric Drive Train System.
- Describe single phase full wave converter feeding a separately excited dc motor with circuit diagram and waveform.
- Explain principle of phase control in rectifiers.
- Explain the operation of V/F control method of speed control of induction motor drive.

Q.3 Solve any two. 12

- Explain the four-quadrant operation of chopper DC motor drive with suitable waveforms for electric vehicle.
- Explain the procedure how electric motor can be selected for hybrid electric vehicle.
- Describe the use of three phase dual-converter for speed control of dc series motor with appropriate Waveforms.

Section – II

Q.4 Solve any four. 16

- Explain in detail Indirect/Feed forward vector control of induction machine.
- Explain principle of direct vector control of induction machine.
- Explain Vehicle supervisory control in detail.
- Describe the torque expression with stator and rotor fluxes in case of Direct Torque control of Induction machine.
- Explain the hybrid mode of control of electric vehicle.
- Describe space vector modulation control in case of induction machine.

Q.5 Solve any two. 12

- Explain different mode selection strategy of control of electric vehicle.
- Explain in detail theory and dc drive analogy of field oriented control of Induction Machine.
- Explain with block diagram Direct Torque of induction motor.

Seat No.	
----------	--

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the duty cycle of a chopper?

a) Ton/Toff	b) Ton/T
c) T/Ton	d) Toff x Ton
- 2) V/f is maintained constant in the following case of speed control of induction motor.
 - a) Below base speed with voltage control
 - b) Below the base speed with frequency control
 - c) Above base speed with frequency control
 - d) None of these
- 3) _____ method relies on keeping V/f ratio constant so as to maintain air gap flux at constant value.

a) Scalar Control	b) Vector Control
c) Torque Control	d) none of the above
- 4) _____ is a technique that allows you to instantaneously control the motor magnetic flux and its electromagnetic torque in a decoupled way.

a) Scalar Control	b) Vector Control
c) Direct Torque Control	d) none of the above
- 5) Space vector modulation is responsible for generating pulse width modulated signals to control the switches of an inverter.
 - a) generating pulse width modulated signals to control the switches of an inverter
 - b) generating pulse width modulated signals only
 - c) control the switches of an inverter only
 - d) none of the above
- 6) _____ analysis of an IM allows decoupled analysis where the flux and torque component can be independently controlled.

a) Scalar Control	b) Vector Control
c) V/F Control	d) none of the above

- 7) The Field Oriented Control (FOC) enables the induction machine being controlled alike the _____.
a) Separately excited DC Machine
b) Permanent magnet DC Machine
c) Switched reluctance machine
d) Stepper motor
- 8) Power split mode of hybrid electric vehicle control uses _____.
a) Series & Parallel control topology
b) Only Series control topology
c) Only Parallel control topology
d) none of the above
- 9) Which of the following control loops used by Direct torque control?
a) speed control loop
b) torque control loop
c) both a & b
d) none of the above
- 10) In the method of phase control, the phase relationship between _____ & _____ is controlled by varying the firing angle.
a) supply current, supply voltage
b) end of the load current, end of the load voltage
c) start of the load current, start of the load voltage
d) load current, load voltage
- 11) In a hybrid electric vehicle one energy source is _____ & the other is a conversion of a _____.
a) combustion, energy to fuel
b) storage, energy to fuel
c) storage, energy to energy
d) storage, fuel to energy
- 12) Dual converters provide _____.
a) two quadrant operation
b) three quadrant operation
c) four quadrant operation
d) none of the mentioned
- 13) In pulse width modulation scheme, _____ is kept constant.
a) V_s
b) T_{on}
c) T
d) T_{off}
- 14) In series hybrid vehicle _____ is coupled with the Internal combustion engine to produce electricity for propulsion.
a) diesel engine
b) generator
c) gas engine
d) hydrogen engine

Seat No.	
-----------------	--

Set S

**T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electric Motors and Controls for Electric Vehicle (BTN07517)

Day & Date: Saturday, 18-05-2024
Time: 10:00 AM To 01:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Solve any four. 16

- Explain power flow in Hybrid Electric Drive Train System with different modes.
- Explain Time Control Strategy (TRC) in case of Chopper Control.
- Explain with diagram Series Hybrid Electric Drive Train System.
- Describe single phase full wave converter feeding a separately excited dc motor with circuit diagram and waveform.
- Explain principle of phase control in rectifiers.
- Explain the operation of V/F control method of speed control of induction motor drive.

Q.3 Solve any two. 12

- Explain the four-quadrant operation of chopper DC motor drive with suitable waveforms for electric vehicle.
- Explain the procedure how electric motor can be selected for hybrid electric vehicle.
- Describe the use of three phase dual-converter for speed control of dc series motor with appropriate Waveforms.

Section – II

Q.4 Solve any four. 16

- Explain in detail Indirect/Feed forward vector control of induction machine.
- Explain principle of direct vector control of induction machine.
- Explain Vehicle supervisory control in detail.
- Describe the torque expression with stator and rotor fluxes in case of Direct Torque control of Induction machine.
- Explain the hybrid mode of control of electric vehicle.
- Describe space vector modulation control in case of induction machine.

Q.5 Solve any two. 12

- Explain different mode selection strategy of control of electric vehicle.
- Explain in detail theory and dc drive analogy of field oriented control of Induction Machine.
- Explain with block diagram Direct Torque of induction motor.

Seat No.	
-------------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 2) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 3) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 4) Macroeconomic theory deals with _____.

a) The behavior of firms	b) The activities of individual units
c) Economic aggregates	d) The behavior of the electronics industry
- 5) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly
- 6) Which of the following is the best example of a natural monopoly?

a) owning the only licensed taxicab in town	b) the United States Postal Service
c) ownership of the only ferry across Puget Sound for twenty miles	d) the cable television company in your hometown
- 7) Which of the following is not a regulatory institution in Indian financial system?

a) RBI	b) CIBIL
c) SEBI	d) IRDA

- 8) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 9) Market system means: _____.
- a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 10) _____ is the application of knowledge which redefines the boundaries of global business.
- a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 2) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 3) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 4) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 5) _____ is the application of knowledge which redefines the boundaries of global business.
 - a) Cultural Values
 - b) Society
 - c) Technology
 - d) Economy
- 6) Who gives a welfare definition of economics?
 - a) Adam Smith
 - b) Alfred Marshall
 - c) Lionel Robbins
 - d) Paul Samuelson
- 7) The type of equilibrium that deals with the determination of price and quantity of only one _____.
 - a) General equilibrium
 - b) Partial equilibrium
 - c) Zero equilibrium
 - d) Pareto efficiency

- 8)** Who is known as father of economics?
- | | |
|--------------------|----------------------|
| a) Adam Smith | b) Prof. A. Samulson |
| c) Alfred Marshall | d) J. R. Hicks |
- 9)** Macroeconomic theory deals with _____.
- a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 10)** Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
- | | |
|-----------------------------|--------------|
| a) Perfect competition | b) Oligopoly |
| c) Monopolistic competition | d) Monopoly |

Seat No.	
-----------------	--

Set

Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above
- 2) _____ is the application of knowledge which redefines the boundaries of global business.

a) Cultural Values	b) Society
c) Technology	d) Economy
- 3) Who gives a welfare definition of economics?

a) Adam Smith	b) Alfred Marshall
c) Lionel Robbins	d) Paul Samuelson
- 4) The type of equilibrium that deals with the determination of price and quantity of only one _____.

a) General equilibrium	b) Partial equilibrium
c) Zero equilibrium	d) Pareto efficiency
- 5) Who is known as father of economics?

a) Adam Smith	b) Prof. A. Samulson
c) Alfred Marshall	d) J. R. Hicks
- 6) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 7) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?

a) Perfect competition	b) Oligopoly
c) Monopolistic competition	d) Monopoly

- 8) Which of the following is the best example of a natural monopoly?
- a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 9) Which of the following is not a regulatory institution in Indian financial system?
- a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 10) Money supply increases when inflation rises in the economy _____.
- a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is known as father of economics?
 - a) Adam Smith
 - b) Prof. A. Samulson
 - c) Alfred Marshall
 - d) J. R. Hicks
- 2) Macroeconomic theory deals with _____.
 - a) The behavior of firms
 - b) The activities of individual units
 - c) Economic aggregates
 - d) The behavior of the electronics industry
- 3) Which of the following market types has all firms selling products so identical that buyers do not care from which firm they buy?
 - a) Perfect competition
 - b) Oligopoly
 - c) Monopolistic competition
 - d) Monopoly
- 4) Which of the following is the best example of a natural monopoly?
 - a) owning the only licensed taxicab in town
 - b) the United States Postal Service
 - c) ownership of the only ferry across Puget Sound for twenty miles
 - d) the cable television company in your hometown
- 5) Which of the following is not a regulatory institution in Indian financial system?
 - a) RBI
 - b) CIBIL
 - c) SEBI
 - d) IRDA
- 6) Money supply increases when inflation rises in the economy _____.
 - a) Increase
 - b) Decrease
 - c) No change
 - d) None of the above
- 7) Market system means: _____.
 - a) Socialism
 - b) Capitalism
 - c) A place where goods are traded
 - d) All of the above

- 8) _____ is the application of knowledge which redefines the boundaries of global business.
- | | |
|--------------------|------------|
| a) Cultural Values | b) Society |
| c) Technology | d) Economy |
- 9) Who gives a welfare definition of economics?
- | | |
|-------------------|--------------------|
| a) Adam Smith | b) Alfred Marshall |
| c) Lionel Robbins | d) Paul Samuelson |
- 10) The type of equilibrium that deals with the determination of price and quantity of only one _____.
- | | |
|------------------------|------------------------|
| a) General equilibrium | b) Partial equilibrium |
| c) Zero equilibrium | d) Pareto efficiency |

Seat No.	
-----------------	--

Set

S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Economics (BTN07506)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Define central bank. Discuss the function of central banking in India. **10**
- Q.3 Write short notes.** **10**
a) Oligopoly
b) Monopoly
- Q.4** Define national income. Explain the methods of measuring national income. **10**
- Q.5 Write short note on.** **10**
a) Micro and Macro Economics
b) Market structures
- Q.6** Discuss the features of new economic policy in India. **10**
- Q.7** Explain the fiscal and exchange rate policies. **10**

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN07507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is the term of Patent?

a) 35 years	b) 25 years
c) 20 years	d) 15 years
- 2) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.

a) Ethical value	b) Moral value
c) Social value	d) Commercial value
- 3) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 4) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 5) Trade mark _____.

a) is represented graphically	b) is capable of distinguishing the goods or services of one person from those of others
c) may include shapes of goods or combination of colors	d) All of the above
- 6) In India, the literary work is protected until _____.

a) Lifetime of author	b) 25 years after the death of author
c) 40 years after the death of author	d) 60 years after the death of author
- 7) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights

- 8)** In which article is intellectual property rights outlined?
- | | |
|---------------|---------------|
| a) Article 15 | b) Article 27 |
| c) Article 13 | d) Article 20 |
- 9)** The first Patent Law was enacted in India in the year _____.
- | | |
|---------|---------|
| a) 1856 | b) 1880 |
| c) 1905 | d) 1850 |
- 10)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN07507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and
Management (BTN07507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In India, the literary work is protected until _____.
 a) Lifetime of author
 b) 25 years after the death of author
 c) 40 years after the death of author
 d) 60 years after the death of author
- 2) Which is not a type of intellectual property?
 a) Trade secrets
 b) Trademarks
 c) Home loans
 d) Copyrights
- 3) In which article is intellectual property rights outlined?
 a) Article 15
 b) Article 27
 c) Article 13
 d) Article 20
- 4) The first Patent Law was enacted in India in the year _____.
 a) 1856
 b) 1880
 c) 1905
 d) 1850
- 5) All of the following are examples of intellectual property protections except _____.
 a) Copyright
 b) Patents
 c) Contracts
 d) Trademarks
- 6) What is the term of Patent?
 a) 35 years
 b) 25 years
 c) 20 years
 d) 15 years
- 7) Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
 a) Ethical value
 b) Moral value
 c) Social value
 d) Commercial value
- 8) Who fills the invention disclosure form (IDF)?
 a) Inventor
 b) Patent Attorney
 c) Assignee
 d) Patent Searcher

- 9) The following can be patented _____.
- a) Machine
 - b) Process
 - c) Composition of matter
 - d) All of these
- 10) Trade mark _____.
- a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above

Seat No.	
-----------------	--

Set Q

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN07507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

- 8) In India, the literary work is protected until _____.
a) Lifetime of author
b) 25 years after the death of author
c) 40 years after the death of author
d) 60 years after the death of author
- 9) Which is not a type of intellectual property?
a) Trade secrets
b) Trademarks
c) Home loans
d) Copyrights
- 10) In which article is intellectual property rights outlined?
a) Article 15
b) Article 27
c) Article 13
d) Article 20

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN07507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN07507)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) Who fills the invention disclosure form (IDF)?

a) Inventor	b) Patent Attorney
c) Assignee	d) Patent Searcher
- 2) The following can be patented _____.

a) Machine	b) Process
c) Composition of matter	d) All of these
- 3) Trade mark _____.
 - a) is represented graphically
 - b) is capable of distinguishing the goods or services of one person from those of others
 - c) may include shapes of goods or combination of colors
 - d) All of the above
- 4) In India, the literary work is protected until _____.
 - a) Lifetime of author
 - b) 25 years after the death of author
 - c) 40 years after the death of author
 - d) 60 years after the death of author
- 5) Which is not a type of intellectual property?

a) Trade secrets	b) Trademarks
c) Home loans	d) Copyrights
- 6) In which article is intellectual property rights outlined?

a) Article 15	b) Article 27
c) Article 13	d) Article 20
- 7) The first Patent Law was enacted in India in the year _____.

a) 1856	b) 1880
c) 1905	d) 1850

- 8)** All of the following are examples of intellectual property protections except _____.
- | | |
|--------------|---------------|
| a) Copyright | b) Patents |
| c) Contracts | d) Trademarks |
- 9)** What is the term of Patent?
- | | |
|-------------|-------------|
| a) 35 years | b) 25 years |
| c) 20 years | d) 15 years |
- 10)** Intellectual Property Rights (IPR) protects the use of information and ideas that are of _____.
- | | |
|------------------|---------------------|
| a) Ethical value | b) Moral value |
| c) Social value | d) Commercial value |

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Intellectual Property Rights for Technology Development and Management (BTN07507)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Attempt following questions (Any Two). 20

- a) What are intellectual property rights? Explain in detail its importance in creating ownership domain.
- b) Compare the Indian IPR system with international IPR frameworks.
- c) Discuss on shifting paradigms of R & D and their linkage to IPR.

Q.3 Write Short Notes (Any Four) 20

- a) Bio technology and intellectual property
- b) Concepts of valuation of IP
- c) TRIPS & Access to Medicines
- d) Intellectual property in project planning
- e) Copyright issues in creative works
- f) Commercialization

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Introduction to Sociology (BTN07508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 2) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 3) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 4) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 5) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 6) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 7) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 8) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 9) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above

- 10)** Who gave the concept of industrial bureaucracy?
- a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber

Seat No.	
-----------------	--

Set P**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024****ELECTRICAL ENGINEERING****Introduction to Sociology (BTN07508)**

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Introduction to Sociology (BTN07508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 2) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer
- 3) Which is the example of the Formal organization?

a) bureaucracy	b) family
c) peer group	d) crowd
- 4) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 5) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 6) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 7) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 8) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 9) What is the base of social structure?

a) polity	b) government
c) economy	d) family

- 10)** What is ascribed status?
- a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary

Seat No.	
-----------------	--

Set Q**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024****ELECTRICAL ENGINEERING****Introduction to Sociology (BTN07508)**

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Introduction to Sociology (BTN07508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) What are the types of social mobility?

a) zigzag – straight	b) vertical-horizontal
c) slow-swift	d) all the above
- 2) Who gave the concept of industrial bureaucracy?

a) Karl Marx	b) Trade Union
c) Dr. Ambedkar	d) Max Weber
- 3) Who is the father of Sociology?

a) Karl Marx	b) Spencer
c) August Comte	d) Max Weber
- 4) Which of the following is a community?

a) spectators in theatre	b) people practicing common religion
c) membership	d) group of travelers
- 5) In what way human society differs from non-human society?

a) race	b) habitat
c) culture	d) group life
- 6) What is the base of social structure?

a) polity	b) government
c) economy	d) family
- 7) What is ascribed status?

a) it is achieved	b) it comes in natural way
c) it is transferable	d) it is temporary
- 8) What is social norm?

a) ethics of the society	b) code of conduct
c) religious laws	d) formal laws
- 9) Who is known for his *Theory of Population*?

a) Karl Marx	b) Charles Darwin
c) Malthus	d) Spencer

- 10)** Which is the example of the Formal organization?
- a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Introduction to Sociology (BTN07508)

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Introduction to Sociology (BTN07508)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) In what way human society differs from non-human society?
 - a) race
 - b) habitat
 - c) culture
 - d) group life
- 2) What is the base of social structure?
 - a) polity
 - b) government
 - c) economy
 - d) family
- 3) What is ascribed status?
 - a) it is achieved
 - b) it comes in natural way
 - c) it is transferable
 - d) it is temporary
- 4) What is social norm?
 - a) ethics of the society
 - b) code of conduct
 - c) religious laws
 - d) formal laws
- 5) Who is known for his *Theory of Population*?
 - a) Karl Marx
 - b) Charles Darwin
 - c) Malthus
 - d) Spencer
- 6) Which is the example of the Formal organization?
 - a) bureaucracy
 - b) family
 - c) peer group
 - d) crowd
- 7) What are the types of social mobility?
 - a) zigzag – straight
 - b) vertical-horizontal
 - c) slow-swift
 - d) all the above
- 8) Who gave the concept of industrial bureaucracy?
 - a) Karl Marx
 - b) Trade Union
 - c) Dr. Ambedkar
 - d) Max Weber
- 9) Who is the father of Sociology?
 - a) Karl Marx
 - b) Spencer
 - c) August Comte
 - d) Max Weber

- 10)** Which of the following is a community?
- a) spectators in theatre
 - b) people practicing common religion
 - c) membership
 - d) group of travelers

Seat No.	
-----------------	--

Set S**T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024****ELECTRICAL ENGINEERING****Introduction to Sociology (BTN07508)**

Day & Date: Monday, 20-05-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. 2 to Q. 7.
2) Figures to the right indicate full marks.

- Q.2** Explain the nature and basis of social stratification. **10**
- Q.3** Explain the causes and nature of urbanization in India. **10**
- Q.4** Give brief account of major social institution in India. **10**
- Q.5** Explain the nature and types of social movements. **10**
- Q.6** Elucidate the meaning and process of socialization. **10**
- Q.7** Explain the meaning causes and directions of social change. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 2) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 3) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 4) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 5) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 6) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 7) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above

- 8)** Which of the following is true about 'deep breathing relaxation technique'?
- a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true
- 9)** Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 10)** Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing

Seat No.	
-----------------	--

Set	P
------------	----------

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

- 8) Which of the following statements is true?
- a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 9) When is a person more likely to have difficulty in coping with a stressful situation?
- a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 10) Aches, shallow breathing and sweating, frequent colds are _____.
- a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
-----------------	--

Set

R

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.**10**

- 1) Which of the following are stress busters?
 - a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 2) Which one is not considered as Environmental stressors?
 - a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 3) When a task appears overwhelming, it is best to _____.
 - a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 4) The word Stress is derived from Latin word 'Stringere' which means _____.
 - a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude
- 5) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 6) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network

- 7) Aches, shallow breathing and sweating, frequent colds are _____.
a) Physical symptoms of stress
b) Behavioral symptoms of stress
c) Emotional symptoms of stress
d) Cognitive symptoms of stress
- 8) Anxiety can cause the following moods _____.
a) Irritable
b) Nervous
c) Anxious
d) All of the above
- 9) Which of the following are the physical symptoms of anxiety?
a) Racing heart
b) Sweaty palms
c) Flushed cheeks
d) All of the above
- 10) Which of the following is true about 'deep breathing relaxation technique'?
a) It can be self-taught
b) It releases tension from the body and clears your mind
c) You have to do this under-water
d) Only '1' & '2' are true

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed & mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose amongst the alternatives.

10

- 1) Which of the following statements is true?
 - a) The stress response is nonspecific
 - b) Different kinds of stressors produce exactly the same response
 - c) Different people respond to the same stressor differently
 - d) All of the above
- 2) When is a person more likely to have difficulty in coping with a stressful situation?
 - a) When he is over the age of fifty
 - b) When he expects a positive outcome
 - c) When he thinks he does not have control over the situation
 - d) When he has a good social support network
- 3) Aches, shallow breathing and sweating, frequent colds are _____.
 - a) Physical symptoms of stress
 - b) Behavioral symptoms of stress
 - c) Emotional symptoms of stress
 - d) Cognitive symptoms of stress
- 4) Anxiety can cause the following moods _____.
 - a) Irritable
 - b) Nervous
 - c) Anxious
 - d) All of the above
- 5) Which of the following are the physical symptoms of anxiety?
 - a) Racing heart
 - b) Sweaty palms
 - c) Flushed cheeks
 - d) All of the above
- 6) Which of the following is true about 'deep breathing relaxation technique'?
 - a) It can be self-taught
 - b) It releases tension from the body and clears your mind
 - c) You have to do this under-water
 - d) Only '1' & '2' are true

- 7) Which of the following are stress busters?
- a) Trying to find something funny in a difficult situation
 - b) Developing a support network
 - c) Taking a mindful walk
 - d) All of the above
- 8) Which one is not considered as Environmental stressors?
- a) Weather
 - b) Traffic
 - c) Financial problems
 - d) Substandard housing
- 9) When a task appears overwhelming, it is best to _____.
- a) Put it aside till later
 - b) Drink alcohol to relax
 - c) Break it down into smaller task
 - d) Avoid the task
- 10) The word Stress is derived from Latin word 'Stringere' which means _____.
- a) Draw tight
 - b) Stimulus
 - c) Force
 - d) Attitude

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Stress and Coping (BTN07509)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) Attempt any four questions from Q. no 2 to Q. no 7.
2) Figures to the right indicate full marks.

- Q.2** Explain in detail the various personality sources of stress. Explain Type A and Type B Personality factors causing stress. **10**
- Q.3** What do you mean by Stress? Describe the current & Historical status of stress in India. **10**
- Q.4** Comment on psychological & behavioral consequences of stress in brief. **10**
- Q.5** Explain various coping styles to deal with stress. **10**
- Q.6** Describe positive and negative effects of stress with examples. **10**
- Q.7** Discuss the nature of stress response. **10**

Seat No.	
----------	--

Set **P**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Virtues are _____.
 a) moral
 b) ethics
 c) values
 d) positive and preferred values
- 2) One of the basic desires of every human being is to be always _____.
 a) Happy
 b) Sad
 c) Laugh
 d) Earn Money
- 3) Value and skills should go hand in hand _____.
 a) True
 b) False
 c) Cannot tell
 d) Wrong question
- 4) _____ are the basic Human aspirations.
 a) Money
 b) Relationship without money
 c) Physical facility
 d) Continuous happiness
- 5) Many complex social problems exist in the _____.
 a) Industry/ Business
 b) Society
 c) Home
 d) None of the above
- 6) What is Integrity?
 a) Unity of thought
 b) Word and deed
 c) Open mindedness
 d) All of these
- 7) Human values are essential for _____.
 a) living in harmony with self, each other and nature
 b) making life easier and happy
 c) living with family and friends
 d) making money to fulfill desires
- 8) Courage is the tendency to accept and face _____.
 a) Self-confidence
 b) Risks and difficult tasks in rational ways
 c) Physical courage
 d) Social courage

- 9) Commitment means _____.
- a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 10) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above

Seat No.	
-----------------	--

Set P

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

Set **Q**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options.

10

- 1) What is Integrity?
 - a) Unity of thought
 - b) Word and deed
 - c) Open mindedness
 - d) All of these
- 2) Human values are essential for _____.
 - a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 3) Courage is the tendency to accept and face _____.
 - a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage
- 4) Commitment means _____.
 - a) Alignment to goals
 - b) Adherence to ethical principles
 - c) Empathy
 - d) All the above
- 5) The objectives of professional ethics in engineering are _____.
 - a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 6) Virtues are _____.
 - a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 7) One of the basic desires of every human being is to be always _____.
 - a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

- 8) Value and skills should go hand in hand _____.
- | | |
|----------------|-------------------|
| a) True | b) False |
| c) Cannot tell | d) Wrong question |
- 9) _____ are the basic Human aspirations.
- | | |
|----------------------|-------------------------------|
| a) Money | b) Relationship without money |
| c) Physical facility | d) Continuous happiness |
- 10) Many complex social problems exist in the _____.
- | | |
|-----------------------|----------------------|
| a) Industry/ Business | b) Society |
| c) Home | d) None of the above |

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if required and state it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options. 10

- 1) Commitment means _____.
 a) Alignment to goals b) Adherence to ethical principles
 c) Empathy d) All the above
- 2) The objectives of professional ethics in engineering are _____.
 a) To understand the moral values that ought to guide the Engineering profession
 b) To resolve the moral issues in the profession, and
 c) To justify the moral judgment concerning the profession
 d) All the above
- 3) Virtues are _____.
 a) moral b) ethics
 c) values d) positive and preferred values
- 4) One of the basic desires of every human being is to be always _____.
 a) Happy b) Sad
 c) Laugh d) Earn Money
- 5) Value and skills should go hand in hand _____.
 a) True b) False
 c) Cannot tell d) Wrong question
- 6) _____ are the basic Human aspirations.
 a) Money b) Relationship without money
 c) Physical facility d) Continuous happiness
- 7) Many complex social problems exist in the _____.
 a) Industry/ Business b) Society
 c) Home d) None of the above
- 8) What is Integrity?
 a) Unity of thought b) Word and deed
 c) Open mindedness d) All of these

- 9) Human values are essential for _____.
- a) living in harmony with self, each other and nature
 - b) making life easier and happy
 - c) living with family and friends
 - d) making money to fulfill desires
- 10) Courage is the tendency to accept and face _____.
- a) Self-confidence
 - b) Risks and difficult tasks in rational ways
 - c) Physical courage
 - d) Social courage

Seat No.	
-----------------	--

Set R

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

- 8) The objectives of professional ethics in engineering are _____.
- a) To understand the moral values that ought to guide the Engineering profession
 - b) To resolve the moral issues in the profession, and
 - c) To justify the moral judgment concerning the profession
 - d) All the above
- 9) Virtues are _____.
- a) moral
 - b) ethics
 - c) values
 - d) positive and preferred values
- 10) One of the basic desires of every human being is to be always _____.
- a) Happy
 - b) Sad
 - c) Laugh
 - d) Earn Money

Seat No.	
-----------------	--

Set S

T. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Professional Ethics & Human Value (BTN07510)

Day & Date: Monday, 20-05-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

- Q.2** What is Ethics and explain three types of ethics or morality? **10**
OR
What are the objectives of Engineering Ethics? Explain in detail.
- Q.3** Distinguish between Kohlberg's and Gilligan's approach to ethical (moral) judgments. **10**
OR
List and explain the skills required to handle moral problems in Engineering Ethics.
- Q.4** **Write short notes on any four.** **20**
a) Respect for others
b) Intellectual Property Rights
c) Spirituality
d) Kohlberg's Theory
e) Character
f) Cooperation

Seat No.	
-----------------	--

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ/Objective Type Questions

14

- 1) In case of D.C. machines, mechanical losses are primary function of _____.
 - a) current
 - b) voltage
 - c) speed
 - d) none of above
- 2) In D.C. generators, the cause of rapid brush wear may be _____.
 - a) Severe sparking
 - b) Rough commutator surface
 - c) Imperfect contact
 - d) Any of the above
- 3) With increase in voltage, the window space factor of transformer _____.
 - a) Decrease
 - b) Increase
 - c) Remains constant
 - d) Decrease or increase depending upon whether it is a distribution or power transformer
- 4) Multi stepped core is used in a transformer to _____.
 - a) Increase output
 - b) Decrease cost of core material
 - c) Decrease cost of copper
 - d) Increase efficiency
- 5) The hum in a transformer is due to _____.
 - a) Magneto striction
 - b) Vibration developed by lamination depending upon tightness of clamping
 - c) Mechanical vibration of the tank walls
 - d) All of the above
- 6) The no-load current drawn by transformer is usually what per cent of the full-load current?
 - a) 0.2 to 0.5 per cent
 - b) 2 to 5 percent
 - c) 12 to 15 per cent
 - d) 20 to 30 per cent

- 7) Specific electric loading is not governed by _____.
a) Heating or temperature rise b) Speed of machine
c) Magnetizing current d) Machine size
- 8) In dc machine increase in field mmf causes _____.
a) Increase in size and cost of the machines
b) Decrease in size and cost of the machines
c) Excessive sparking
d) None of these
- 9) Higher values of flux density can be taken while designing machines for _____.
a) Large rotor diameter b) Large output
c) Both a and b d) None of these
- 10) In induction motor specific electric loading is governed by _____.
a) Commutation b) Temperature rise
c) Overload capacity d) voltage
- 11) In case the air gap in an induction motor is increased _____.
a) the magnetizing current of the rotor will decrease
b) the power factor will decrease
c) speed of motor will increase
d) the wind age losses will increase
- 12) The stator core of turbo alternator is made of _____.
a) Segmental laminations of low loss silicon steel
b) Cold-rolled non oriented steel with about 3% silicon
c) Cold-rolled grain oriented steel with about 4% silicon
d) Both a and b
- 13) Use of higher B_{av} in synchronous machines caused increase in _____.
a) Iron loss b) Synchronizing power
c) Short circuit current d) All of these
- 14) When V is the applied voltage, then the breakdown torque of a synchronous motor varies as _____.
a) V b) $V/2$
c) V^2 d) $1/V$

Seat No.	
----------	--

Set **P**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Answer any FOUR questions **16**

- a) Explain the design limitations.
- b) Derive an expression for square core.
- c) Explain the specific magnetic loading for dc machine.
- d) Determine suitable values for the D&L for a 1000kw, 500v, 10 poles, 300 rpm dc shunt generator assume $B_{av} = 1\text{wb/m}$ specific electric loading 400 amp.cond.
- e) Calculate the core & window area required for a 1000kva, 6600/400v, 50hz, 1-ph. Core type transformer assume $B_{max} = 1.25\text{wb/m}$ & current density is 2.5A/mm voltage /turn 30v, window space factor 0.32.

Q.3 Answer any TWO questions **12**

- a) Derive an expression for two stepped core.
- b) Derive an expression for output equation of dc machine.
- c) A 3-ph. 50hz, core type transformer has the following dimensions distance between the core centers 0.2m height of window 0.24m, $d = 0.14$, $B_{max} = 1.25\text{wb/m}$, current density 2.5A/mm assume window space factor 0.2 core area factor 0.56 the core is 2-stepped Estimate the kva rating of transformer.

Section – II

Q.4 Answer any FOUR questions. **16**

- a) Explain the specific magnetic loading for synchronous machine.
- b) Derive an expression for stator winding of IM.
- c) Derive an expression for rotor bars for IM.
- d) Determine the main dimensions of a 11kw, 400v, 3-ph.4pole 1425rpm delta connected IM $B_{av} = 0.45\text{wb/m}$, $a_c = 23000\text{ amp. Cond.}$ Full load efficiency 0.85 p.f.0.88, $L/\tau = 1$.
- e) The output coefficient of 1250kva, 300rpm synchronous generator is 200kva/m-rps $L/D = 0.2$, find the values of main dimensions when specific loading is decreased by 10%.

Q.5 Answer any TWO questions **12**

- a) Derive an expression for output equation of turbo alternator.
- b) Derive an expression for output equation of ac machine.
- c) A 20hp, 440v, 4pole 50hz, 3-ph.IM is built with a stator diameter of 0.25 m & core length of 0.16m $a_c = 23000\text{ amp. Cond.}$ Find magnetic loading of the machine assume efficiency 0.84 & p.f.0.82.

Seat No.	
----------	--

Set **Q**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ/Objective Type Questions**14**

- 1) In dc machine increase in field mmf causes _____.
 a) Increase in size and cost of the machines
 b) Decrease in size and cost of the machines
 c) Excessive sparking
 d) None of these
- 2) Higher values of flux density can be taken while designing machines for _____.
 a) Large rotor diameter b) Large output
 c) Both a and b d) None of these
- 3) In induction motor specific electric loading is governed by _____.
 a) Commutation b) Temperature rise
 c) Overload capacity d) voltage
- 4) In case the air gap in an induction motor is increased _____.
 a) the magnetizing current of the rotor will decrease
 b) the power factor will decrease
 c) speed of motor will increase
 d) the wind age losses will increase
- 5) The stator core of turbo alternator is made of _____.
 a) Segmental laminations of low loss silicon steel
 b) Cold-rolled non oriented steel with about 3% silicon
 c) Cold-rolled grain oriented steel with about 4% silicon
 d) Both a and b
- 6) Use of higher B_{av} in synchronous machines caused increase in _____.
 a) Iron loss b) Synchronizing power
 c) Short circuit current d) All of these
- 7) When V is the applied voltage, then the breakdown torque of a synchronous motor varies as _____.
 a) V b) $V/2$
 c) V^2 d) $1/V$

- 8) In case of D.C. machines, mechanical losses are primary function of _____.
a) current
b) voltage
c) speed
d) none of above
- 9) In D.C. generators, the cause of rapid brush wear may be _____.
a) Severe sparking
b) Rough commutator surface
c) Imperfect contact
d) Any of the above
- 10) With increase in voltage, the window space factor of transformer _____.
a) Decrease
b) Increase
c) Remains constant
d) Decrease or increase depending upon whether it is a distribution or power transformer
- 11) Multi stepped core is used in a transformer to _____.
a) Increase output
b) Decrease cost of core material
c) Decrease cost of copper
d) Increase efficiency
- 12) The hum in a transformer is due to _____.
a) Magneto striction
b) Vibration developed by lamination depending upon tightness of clamping
c) Mechanical vibration of the tank walls
d) All of the above
- 13) The no-load current drawn by transformer is usually what per cent of the full-load current?
a) 0.2 to 0.5 per cent
b) 2 to 5 percent
c) 12 to 15 per cent
d) 20 to 30 per cent
- 14) Specific electric loading is not governed by _____.
a) Heating or temperature rise
b) Speed of machine
c) Magnetizing current
d) Machine size

Seat No.	
----------	--

Set **Q**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Answer any FOUR questions **16**

- a) Explain the design limitations.
- b) Derive an expression for square core.
- c) Explain the specific magnetic loading for dc machine.
- d) Determine suitable values for the D&L for a 1000kw, 500v, 10 poles, 300 rpm dc shunt generator assume $B_{av} = 1 \text{ wb/m}$ specific electric loading 400 amp.cond.
- e) Calculate the core & window area required for a 1000kva, 6600/400v, 50hz, 1-ph. Core type transformer assume $B_{max} = 1.25 \text{ wb/m}$ & current density is 2.5A/mm voltage /turn 30v, window space factor 0.32.

Q.3 Answer any TWO questions **12**

- a) Derive an expression for two stepped core.
- b) Derive an expression for output equation of dc machine.
- c) A 3-ph. 50hz, core type transformer has the following dimensions distance between the core centers 0.2m height of window 0.24m, $d = 0.14$, $B_{max} = 1.25 \text{ wb/m}$, current density 2.5A/mm assume window space factor 0.2 core area factor 0.56 the core is 2-stepped Estimate the kva rating of transformer.

Section – II

Q.4 Answer any FOUR questions. **16**

- a) Explain the specific magnetic loading for synchronous machine.
- b) Derive an expression for stator winding of IM.
- c) Derive an expression for rotor bars for IM.
- d) Determine the main dimensions of a 11kw, 400v, 3-ph.4pole 1425rpm delta connected IM $B_{av} = 0.45 \text{ wb/m}$, $a_c = 23000 \text{ amp. Cond.}$ Full load efficiency 0.85 p.f.0.88, $L/\tau = 1$.
- e) The output coefficient of 1250kva, 300rpm synchronous generator is 200kva/m-rps $L/D = 0.2$, find the values of main dimensions when specific loading is decreased by 10%.

Q.5 Answer any TWO questions **12**

- a) Derive an expression for output equation of turbo alternator.
- b) Derive an expression for output equation of ac machine.
- c) A 20hp, 440v, 4pole 50hz, 3-ph.IM is built with a stator diameter of 0.25 m & core length of 0.16m $a_c = 23000 \text{ amp. Cond.}$ Find magnetic loading of the machine assume efficiency 0.84 & p.f.0.82.

Seat No.	
----------	--

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ/Objective Type Questions

14

- 1) In case the air gap in an induction motor is increased _____.
 a) the magnetizing current of the rotor will decrease
 b) the power factor will decrease
 c) speed of motor will increase
 d) the wind age losses will increase
- 2) The stator core of turbo alternator is made of _____.
 a) Segmental laminations of low loss silicon steel
 b) Cold-rolled non oriented steel with about 3% silicon
 c) Cold-rolled grain oriented steel with about 4% silicon
 d) Both a and b
- 3) Use of higher B_{av} in synchronous machines caused increase in _____.
 a) Iron loss
 b) Synchronizing power
 c) Short circuit current
 d) All of these
- 4) When V is the applied voltage, then the breakdown torque of a synchronous motor varies as _____.
 a) V
 b) $V/2$
 c) V^2
 d) $1/V$
- 5) In case of D.C. machines, mechanical losses are primary function of _____.
 a) current
 b) voltage
 c) speed
 d) none of above
- 6) In D.C. generators, the cause of rapid brush wear may be _____.
 a) Severe sparking
 b) Rough commutator surface
 c) Imperfect contact
 d) Any of the above
- 7) With increase in voltage, the window space factor of transformer _____.
 a) Decrease
 b) Increase
 c) Remains constant
 d) Decrease or increase depending upon whether it is a distribution or power transformer

- 8) Multi stepped core is used in a transformer to _____.
- Increase output
 - Decrease cost of core material
 - Decrease cost of copper
 - Increase efficiency
- 9) The hum in a transformer is due to _____.
- Magneto striction
 - Vibration developed by lamination depending upon tightness of clamping
 - Mechanical vibration of the tank walls
 - All of the above
- 10) The no-load current drawn by transformer is usually what per cent of the full-load current?
- 0.2 to 0.5 per cent
 - 2 to 5 percent
 - 12 to 15 per cent
 - 20 to 30 per cent
- 11) Specific electric loading is not governed by _____.
- Heating or temperature rise
 - Speed of machine
 - Magnetizing current
 - Machine size
- 12) In dc machine increase in field mmf causes _____.
- Increase in size and cost of the machines
 - Decrease in size and cost of the machines
 - Excessive sparking
 - None of these
- 13) Higher values of flux density can be taken while designing machines for _____.
- Large rotor diameter
 - Large output
 - Both a and b
 - None of these
- 14) In induction motor specific electric loading is governed by _____.
- Commutation
 - Temperature rise
 - Overload capacity
 - voltage

Seat No.	
----------	--

Set **R**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Answer any FOUR questions **16**

- a) Explain the design limitations.
- b) Derive an expression for square core.
- c) Explain the specific magnetic loading for dc machine.
- d) Determine suitable values for the D&L for a 1000kw, 500v, 10 poles, 300 rpm dc shunt generator assume $B_{av} = 1 \text{ wb/m}$ specific electric loading 400 amp.cond.
- e) Calculate the core & window area required for a 1000kva, 6600/400v, 50hz, 1-ph. Core type transformer assume $B_{max} = 1.25 \text{ wb/m}$ & current density is 2.5A/mm voltage /turn 30v, window space factor 0.32.

Q.3 Answer any TWO questions **12**

- a) Derive an expression for two stepped core.
- b) Derive an expression for output equation of dc machine.
- c) A 3-ph. 50hz, core type transformer has the following dimensions distance between the core centers 0.2m height of window 0.24m, $d = 0.14$, $B_{max} = 1.25 \text{ wb/m}$, current density 2.5A/mm assume window space factor 0.2 core area factor 0.56 the core is 2-stepped Estimate the kva rating of transformer.

Section – II

Q.4 Answer any FOUR questions. **16**

- a) Explain the specific magnetic loading for synchronous machine.
- b) Derive an expression for stator winding of IM.
- c) Derive an expression for rotor bars for IM.
- d) Determine the main dimensions of a 11kw, 400v, 3-ph.4pole 1425rpm delta connected IM $B_{av} = 0.45 \text{ wb/m}$, $a_c = 23000 \text{ amp. Cond.}$ Full load efficiency 0.85 p.f.0.88, $L/\tau = 1$.
- e) The output coefficient of 1250kva, 300rpm synchronous generator is 200kva/m-rps $L/D = 0.2$, find the values of main dimensions when specific loading is decreased by 10%.

Q.5 Answer any TWO questions **12**

- a) Derive an expression for output equation of turbo alternator.
- b) Derive an expression for output equation of ac machine.
- c) A 20hp, 440v, 4pole 50hz, 3-ph.IM is built with a stator diameter of 0.25 m & core length of 0.16m $a_c = 23000 \text{ amp. Cond.}$ Find magnetic loading of the machine assume efficiency 0.84 & p.f.0.82.

Seat No.	
----------	--

Set **S**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No.3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 MCQ/Objective Type Questions**14**

- 1) The no-load current drawn by transformer is usually what per cent of the full-load current?
 - a) 0.2 to 0.5 per cent
 - b) 2 to 5 percent
 - c) 12 to 15 per cent
 - d) 20 to 30 per cent
- 2) Specific electric loading is not governed by _____.
 - a) Heating or temperature rise
 - b) Speed of machine
 - c) Magnetizing current
 - d) Machine size
- 3) In dc machine increase in field mmf causes _____.
 - a) Increase in size and cost of the machines
 - b) Decrease in size and cost of the machines
 - c) Excessive sparking
 - d) None of these
- 4) Higher values of flux density can be taken while designing machines for _____.
 - a) Large rotor diameter
 - b) Large output
 - c) Both a and b
 - d) None of these
- 5) In induction motor specific electric loading is governed by _____.
 - a) Commutation
 - b) Temperature rise
 - c) Overload capacity
 - d) voltage
- 6) In case the air gap in an induction motor is increased _____.
 - a) the magnetizing current of the rotor will decrease
 - b) the power factor will decrease
 - c) speed of motor will increase
 - d) the wind age losses will increase
- 7) The stator core of turbo alternator is made of _____.
 - a) Segmental laminations of low loss silicon steel
 - b) Cold-rolled non oriented steel with about 3% silicon
 - c) Cold-rolled grain oriented steel with about 4% silicon
 - d) Both a and b

Seat No.	
----------	--

Set **S**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Machine Design (BTN07601)

Day & Date: Tuesday, 21-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to right indicate full marks.

Section – I

Q.2 Answer any FOUR questions **16**

- a) Explain the design limitations.
- b) Derive an expression for square core.
- c) Explain the specific magnetic loading for dc machine.
- d) Determine suitable values for the D&L for a 1000kw, 500v, 10 poles, 300 rpm dc shunt generator assume $B_{av} = 1\text{wb/m}$ specific electric loading 400 amp.cond.
- e) Calculate the core & window area required for a 1000kva, 6600/400v, 50hz, 1-ph. Core type transformer assume $B_{max} = 1.25\text{wb/m}$ & current density is 2.5A/mm voltage /turn 30v, window space factor 0.32.

Q.3 Answer any TWO questions **12**

- a) Derive an expression for two stepped core.
- b) Derive an expression for output equation of dc machine.
- c) A 3-ph. 50hz, core type transformer has the following dimensions distance between the core centers 0.2m height of window 0.24m, $d = 0.14$, $B_{max} = 1.25\text{wb/m}$, current density 2.5A/mm assume window space factor 0.2 core area factor 0.56 the core is 2-stepped Estimate the kva rating of transformer.

Section – II

Q.4 Answer any FOUR questions. **16**

- a) Explain the specific magnetic loading for synchronous machine.
- b) Derive an expression for stator winding of IM.
- c) Derive an expression for rotor bars for IM.
- d) Determine the main dimensions of a 11kw, 400v, 3-ph.4pole 1425rpm delta connected IM $B_{av} = 0.45\text{wb/m}$, $a_c = 23000\text{ amp. Cond.}$ Full load efficiency 0.85 p.f.0.88, $L/\tau = 1$.
- e) The output coefficient of 1250kva, 300rpm synchronous generator is 200kva/m-rps $L/D = 0.2$, find the values of main dimensions when specific loading is decreased by 10%.

Q.5 Answer any TWO questions **12**

- a) Derive an expression for output equation of turbo alternator.
- b) Derive an expression for output equation of ac machine.
- c) A 20hp, 440v, 4pole 50hz, 3-ph.IM is built with a stator diameter of 0.25 m & core length of 0.16m $a_c = 23000\text{ amp. Cond.}$ Find magnetic loading of the machine assume efficiency 0.84 & p.f.0.82.

Seat No.	
-------------	--

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The efficiency of diesel locomotives is nearly _____.
 a) 20 - 25 percent b) 35 - 40 percent
 c) 50 - 55 percent d) 70 - 75 percent
- 2) The advantage of electric traction over other methods is _____.
 a) No pollution b) Faster acceleration
 c) Better braking action d) All of above
- 3) Which motor is used in tramways?
 a) AC single phase capacitor start motor
 b) AC three phase motor
 c) DC series motor
 d) DC shunt motor
- 4) When the speed of the train is estimated taking into account the time of stop at a station in addition to the actual running time between stops, is known as _____.
 a) Average speed b) Schedule speed
 c) Notching speed d) Free running speed
- 5) Overhead lines for power supply to tramcars are at a minimum height of _____.
 a) 2 m b) 5 m
 c) 10 m d) 15 m
- 6) An ideal traction system should have _____.
 a) High starting tractive effort
 b) Equipment capable of withstanding large temporary overloads
 c) Easy speed control
 d) All of the above
- 7) D.C. motors are used in _____.
 a) Mines b) Steel mills
 c) Paper mills d) Moist atmosphere

Seat No.	
-----------------	--

Set P

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Draw and explain speed time curve for main line services.
- Desirable characteristic of traction motors.
- Explain plugging braking system in traction system.
- Write short note on motor selection in textile industries.
- A train is required to run between two stations 1.6 km apart at an average speed of 40 kmph. The run is to be made to a simplified quadrilateral speed-time curve. If the maximum speed is limited to 64 kmph, acceleration to 2.0 kmphs, coasting and braking retardation to 0.16 kmphs and 3.2 kmphs, determine the duration of acceleration, coasting and braking periods.

Q.3 Solve any two. 12

- Derive an expression for Trapezoidal Speed-Time Curve.
- Explain series-parallel control of traction motors.
- Write note on motor selection in sugar mills.

Section – II

Q.4 Solve any four. 16

- Comparison between tungsten filament lamps and fluorescent tubes.
- State advantages and disadvantages electrical welding.
- Describe with the help of a neat diagram the construction and working of a high pressure mercury vapour lamp.
- Explain the laws of illumination.
- Write a note on Energy Conservation in Transport.

Q.5 Solve any two. 12

- Explain flood lighting.
- Explain Energy Conservation Planning.
- Explain direct resistance and indirect resistance heating.

Seat No.	
----------	--

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following applications of motor need to start with high acceleration?
 - a) Floor mill
 - b) Oil expeller
 - c) Centrifugal pump
 - d) Lifts and Hoists
- 2) Which of the following is of high value in case of induction heating?
 - a) Voltage
 - b) Current
 - c) Frequency
 - d) All of the above
- 3) Following welding are varieties of resistance welding.
 - a) Seam welding
 - b) Butt welding
 - c) Spot welding
 - d) All of the above
- 4) The welding transformer used in resistance welding will _____.
 - a) Step up current
 - b) Step down current
 - c) Step up voltage
 - d) Step up power
- 5) The unit of solid angle is _____.
 - a) solid angle
 - b) radian
 - c) steradian
 - d) candela
- 6) The unit of luminous flux is _____.
 - a) steradian
 - b) candela
 - c) lumen
 - d) lux
- 7) Which of the following is more energy efficient?
 - a) Incandescent Bulb
 - b) Fluorescent Tube light
 - c) CFL
 - d) None of these
- 8) The efficiency of diesel locomotives is nearly _____.
 - a) 20 - 25 percent
 - b) 35 - 40 percent
 - c) 50 - 55 percent
 - d) 70 - 75 percent
- 9) The advantage of electric traction over other methods is _____.
 - a) No pollution
 - b) Faster acceleration
 - c) Better braking action
 - d) All of above

- 10)** Which motor is used in tramways?
a) AC single phase capacitor start motor
b) AC three phase motor
c) DC series motor
d) DC shunt motor
- 11)** When the speed of the train is estimated taking into account the time of stop at a station in addition to the actual running time between stops, is known as _____.
a) Average speed
b) Schedule speed
c) Notching speed
d) Free running speed
- 12)** Overhead lines for power supply to tramcars are at a minimum height of _____.
a) 2 m
b) 5 m
c) 10 m
d) 15 m
- 13)** An ideal traction system should have _____.
a) High starting tractive effort
b) Equipment capable of withstanding large temporary overloads
c) Easy speed control
d) All of the above
- 14)** D.C. motors are used in _____.
a) Mines
b) Steel mills
c) Paper mills
d) Moist atmosphere

Seat No.	
-----------------	--

Set Q

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Draw and explain speed time curve for main line services.
- Desirable characteristic of traction motors.
- Explain plugging braking system in traction system.
- Write short note on motor selection in textile industries.
- A train is required to run between two stations 1.6 km apart at an average speed of 40 kmph. The run is to be made to a simplified quadrilateral speed-time curve. If the maximum speed is limited to 64 kmph, acceleration to 2.0 kmphs, coasting and braking retardation to 0.16 kmphs and 3.2 kmphs, determine the duration of acceleration, coasting and braking periods.

Q.3 Solve any two. 12

- Derive an expression for Trapezoidal Speed-Time Curve.
- Explain series-parallel control of traction motors.
- Write note on motor selection in sugar mills.

Section – II

Q.4 Solve any four. 16

- Comparison between tungsten filament lamps and fluorescent tubes.
- State advantages and disadvantages electrical welding.
- Describe with the help of a neat diagram the construction and working of a high pressure mercury vapour lamp.
- Explain the laws of illumination.
- Write a note on Energy Conservation in Transport.

Q.5 Solve any two. 12

- Explain flood lighting.
- Explain Energy Conservation Planning.
- Explain direct resistance and indirect resistance heating.

- 9) Overhead lines for power supply to tramcars are at a minimum height of _____.
- | | |
|---------|---------|
| a) 2 m | b) 5 m |
| c) 10 m | d) 15 m |
- 10) An ideal traction system should have _____.
- | |
|----------------------------------------------------------------|
| a) High starting tractive effort |
| b) Equipment capable of withstanding large temporary overloads |
| c) Easy speed control |
| d) All of the above |
- 11) D.C. motors are used in _____.
- | | |
|----------------|---------------------|
| a) Mines | b) Steel mills |
| c) Paper mills | d) Moist atmosphere |
- 12) Which of the following applications of motor need to start with high acceleration?
- | | |
|---------------------|---------------------|
| a) Floor mill | b) Oil expeller |
| c) Centrifugal pump | d) Lifts and Hoists |
- 13) Which of the following is of high value in case of induction heating?
- | | |
|--------------|---------------------|
| a) Voltage | b) Current |
| c) Frequency | d) All of the above |
- 14) Following welding are varieties of resistance welding.
- | | |
|-----------------|---------------------|
| a) Seam welding | b) Butt welding |
| c) Spot welding | d) All of the above |

Seat No.	
-----------------	--

Set R

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Draw and explain speed time curve for main line services.
- Desirable characteristic of traction motors.
- Explain plugging braking system in traction system.
- Write short note on motor selection in textile industries.
- A train is required to run between two stations 1.6 km apart at an average speed of 40 kmph. The run is to be made to a simplified quadrilateral speed-time curve. If the maximum speed is limited to 64 kmph, acceleration to 2.0 kmphs, coasting and braking retardation to 0.16 kmphs and 3.2 kmphs, determine the duration of acceleration, coasting and braking periods.

Q.3 Solve any two. 12

- Derive an expression for Trapezoidal Speed-Time Curve.
- Explain series-parallel control of traction motors.
- Write note on motor selection in sugar mills.

Section – II

Q.4 Solve any four. 16

- Comparison between tungsten filament lamps and fluorescent tubes.
- State advantages and disadvantages electrical welding.
- Describe with the help of a neat diagram the construction and working of a high pressure mercury vapour lamp.
- Explain the laws of illumination.
- Write a note on Energy Conservation in Transport.

Q.5 Solve any two. 12

- Explain flood lighting.
- Explain Energy Conservation Planning.
- Explain direct resistance and indirect resistance heating.

Seat No.	
----------	--

Set **S**

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) An ideal traction system should have _____.
 - a) High starting tractive effort
 - b) Equipment capable of withstanding large temporary overloads
 - c) Easy speed control
 - d) All of the above
- 2) D.C. motors are used in _____.
 - a) Mines
 - b) Steel mills
 - c) Paper mills
 - d) Moist atmosphere
- 3) Which of the following applications of motor need to start with high acceleration?
 - a) Floor mill
 - b) Oil expeller
 - c) Centrifugal pump
 - d) Lifts and Hoists
- 4) Which of the following is of high value in case of induction heating?
 - a) Voltage
 - b) Current
 - c) Frequency
 - d) All of the above
- 5) Following welding are varieties of resistance welding.
 - a) Seam welding
 - b) Butt welding
 - c) Spot welding
 - d) All of the above
- 6) The welding transformer used in resistance welding will _____.
 - a) Step up current
 - b) Step down current
 - c) Step up voltage
 - d) Step up power
- 7) The unit of solid angle is _____.
 - a) solid angle
 - b) radian
 - c) steradian
 - d) candela
- 8) The unit of luminous flux is _____.
 - a) steradian
 - b) candela
 - c) lumen
 - d) lux
- 9) Which of the following is more energy efficient?
 - a) Incandescent Bulb
 - b) Fluorescent Tube light
 - c) CFL
 - d) None of these

- 10)** The efficiency of diesel locomotives is nearly _____.
- a) 20 - 25 percent b) 35 - 40 percent
c) 50 - 55 percent d) 70 - 75 percent
- 11)** The advantage of electric traction over other methods is _____.
- a) No pollution b) Faster acceleration
c) Better braking action d) All of above
- 12)** Which motor is used in tramways?
- a) AC single phase capacitor start motor
b) AC three phase motor
c) DC series motor
d) DC shunt motor
- 13)** When the speed of the train is estimated taking into account the time of stop at a station in addition to the actual running time between stops, is known as _____.
- a) Average speed b) Schedule speed
c) Notching speed d) Free running speed
- 14)** Overhead lines for power supply to tramcars are at a minimum height of _____.
- a) 2 m b) 5 m
c) 10 m d) 15 m

Seat No.	
-----------------	--

Set S

T. Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Utilization (BTN07602)

Day & Date: Friday, 24-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Draw and explain speed time curve for main line services.
- Desirable characteristic of traction motors.
- Explain plugging braking system in traction system.
- Write short note on motor selection in textile industries.
- A train is required to run between two stations 1.6 km apart at an average speed of 40 kmph. The run is to be made to a simplified quadrilateral speed-time curve. If the maximum speed is limited to 64 kmph, acceleration to 2.0 kmphs, coasting and braking retardation to 0.16 kmphs and 3.2 kmphs, determine the duration of acceleration, coasting and braking periods.

Q.3 Solve any two. 12

- Derive an expression for Trapezoidal Speed-Time Curve.
- Explain series-parallel control of traction motors.
- Write note on motor selection in sugar mills.

Section – II

Q.4 Solve any four. 16

- Comparison between tungsten filament lamps and fluorescent tubes.
- State advantages and disadvantages electrical welding.
- Describe with the help of a neat diagram the construction and working of a high pressure mercury vapour lamp.
- Explain the laws of illumination.
- Write a note on Energy Conservation in Transport.

Q.5 Solve any two. 12

- Explain flood lighting.
- Explain Energy Conservation Planning.
- Explain direct resistance and indirect resistance heating.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A TRIAC can be turned on with _____.
 a) Positive voltage at the gate terminal
 b) Negative voltage at the gate terminal
 c) Either (a) or (b)
 d) None of the above
- 2) Which of the following finds applications in speed control of a DC motor?
 a) FET
 b) NPN transistor
 c) SCR
 d) None of the above
- 3) The curve between V and I of SCR when anode is positive w.r.t cathode and when anode is negative w.r.t cathode are known as _____.
 a) both as forward characteristics
 b) both as reverse characteristics
 c) former as forward characteristics and later as reverse characteristics
 d) former as reverse characteristics and later as forward characteristics
- 4) Bidirectional semiconductor device is _____.
 a) Diode
 b) BJT
 c) SCR
 d) TRIAC
- 5) The IGBT resulted in higher switching speed and lower energy losses. It can be used for _____.
 a) Uninterruptible power supplies
 b) Induction heating system
 c) Constant voltage and frequency power supplies
 d) All of these
- 6) A thyristor controlled reactor is used to get _____.
 a) variable resistance
 b) variable capacitance
 c) variable inductance
 d) improved reactive power factor
- 7) Thyristor can be protected from over voltages by using _____.
 a) voltage clamping device
 b) fuse
 c) heat sink
 d) snubber circuit

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. **16**

- a) Draw and explain characteristics of DIAC and TRIAC.
- b) Explain overvoltage and overcurrent protection circuit of SCR.
- c) Explain Type D & type E chopper.
- d) Draw single phase full bridge inverter circuit, gate pulses, output voltage waveforms and explain the operation of circuit.
- e) A single-phase half wave diode rectifier feeds power to RL Load. Describe the working of this rectifier with relevant waveforms.

Q.3 Solve any two. **12**

- a) Explain the three phase fully controlled rectifier with the voltage and current waveforms.
- b) Explain the operation of three bridge inverters for 180 degree mode of operation with phase and line voltage waveforms.
- c) A step down dc chopper has resistive load of $R=15\ \Omega$ and input voltage is 200V when the chopper remains ON, its voltage drop is 3V the chopper frequency is 1 kHz. If the duty cycle is 75%, determine:
 - i) Average output voltage
 - ii) RMS Output voltage
 - iii) Chopper efficiency

Section – II

Q.4 Solve any four. **16**

- a) Derive the fundamental torque equation of electric drives.
- b) Explain stator voltage control of three phase induction motor with soft start.
- c) Explain the different parts of the electrical drive system.
- d) What are the different types of electrical braking system and explain any one of them in detail.
- e) Explain closed loop speed control of dc motor drives.

Q.5 Solve any two. **12**

- a) With a neat circuit diagram and waveform explain multiquadrant operation of chopper controlled dc motor drives.
- b) Explain the converter circuit for switched reluctance motor.

- c) A separately-excited d.c. motor has the following parameters:
 $R_a = 0.25 \Omega$, $K_e = 0.62 \text{ V/rpm}$, Φ (flux per pole) = 175 mWb
 The motor speed is controlled by a single-phase, full-wave bridge rectifier. The firing angle α is set at 45° , and the average speed is 1300 rpm . The applied a.c. Voltage to the bridge is 230 V at 50 Hz . Assuming the motor current is continuous; calculate the armature current drawn by the motor and the steady-state torque for the Fully-controlled bridge shown in figure(a)

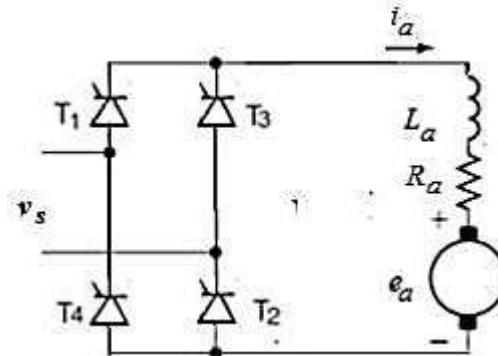


Fig (a): Fully-controlled bridge

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) For high frequency chopper the device preferred is _____.
 - a) Thyristor
 - b) Transistor
 - c) GTO
 - d) IGBT
- 2) In which of the following applications ac drives are used _____.
 - a) fans
 - b) blowers
 - c) mill run out tables
 - d) All of these
- 3) During regenerative braking mode, back emf is _____ supply voltage.
 - a) less than
 - b) greater than
 - c) equal to
 - d) none
- 4) What is meant by drive?
 - a) Voltage control
 - b) Motion control
 - c) Power control
 - d) None of the above
- 5) For variable speed application the suitable motor is _____.
 - a) Squirrel cage I.M.
 - b) Slip ring I.M.
 - c) Both a and b
 - d) None
- 6) How many thyristor are required for load commutated inverter for a synchronous motor drive?
 - a) 3
 - b) 6
 - c) 12
 - d) 4
- 7) In a dual converter switch acts like a _____.
 - a) Forward motoring
 - b) Reverse motoring
 - c) Both a and b
 - d) None of these
- 8) A TRIAC can be turned on with _____.
 - a) Positive voltage at the gate terminal
 - b) Negative voltage at the gate terminal
 - c) Either (a) or (b)
 - d) None of the above

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. **16**

- a) Draw and explain characteristics of DIAC and TRIAC.
- b) Explain overvoltage and overcurrent protection circuit of SCR.
- c) Explain Type D & type E chopper.
- d) Draw single phase full bridge inverter circuit, gate pulses, output voltage waveforms and explain the operation of circuit.
- e) A single-phase half wave diode rectifier feeds power to RL Load. Describe the working of this rectifier with relevant waveforms.

Q.3 Solve any two. **12**

- a) Explain the three phase fully controlled rectifier with the voltage and current waveforms.
- b) Explain the operation of three bridge inverters for 180 degree mode of operation with phase and line voltage waveforms.
- c) A step down dc chopper has resistive load of $R=15\ \Omega$ and input voltage is 200V when the chopper remains ON, its voltage drop is 3V the chopper frequency is 1 kHz. If the duty cycle is 75%, determine:
 - i) Average output voltage
 - ii) RMS Output voltage
 - iii) Chopper efficiency

Section – II

Q.4 Solve any four. **16**

- a) Derive the fundamental torque equation of electric drives.
- b) Explain stator voltage control of three phase induction motor with soft start.
- c) Explain the different parts of the electrical drive system.
- d) What are the different types of electrical braking system and explain any one of them in detail.
- e) Explain closed loop speed control of dc motor drives.

Q.5 Solve any two. **12**

- a) With a neat circuit diagram and waveform explain multiquadrant operation of chopper controlled dc motor drives.
- b) Explain the converter circuit for switched reluctance motor.

- c) A separately-excited d.c. motor has the following parameters:
 $R_a = 0.25 \Omega$, $K_e = 0.62 \text{ V/rpm}$, W_b, Φ (flux per pole) = 175 mWb
 The motor speed is controlled by a single-phase, full-wave bridge rectifier. The firing angle α is set at 45° , and the average speed is 1300 rpm . The applied a.c. Voltage to the bridge is 230 V at 50 Hz . Assuming the motor current is continuous; calculate the armature current drawn by the motor and the steady-state torque for the Fully-controlled bridge shown in figure(a)

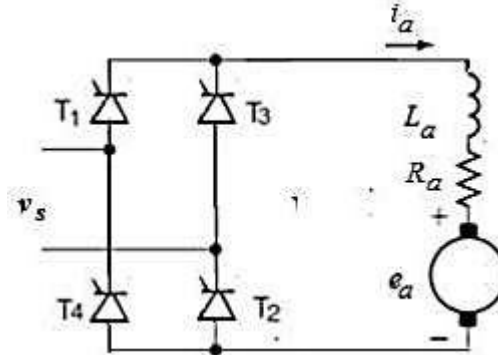


Fig (a): Fully-controlled bridge

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What is meant by drive?
 - a) Voltage control
 - b) Motion control
 - c) Power control
 - d) None of the above
- 2) For variable speed application the suitable motor is _____.
 - a) Squirrel cage I.M.
 - b) Slip ring I.M.
 - c) Both a and b
 - d) None
- 3) How many thyristor are required for load commutated inverter for a synchronous motor drive?
 - a) 3
 - b) 6
 - c) 12
 - d) 4
- 4) In a dual converter switch acts like a _____.
 - a) Forward motoring
 - b) Reverse motoring
 - c) Both a and b
 - d) None of these
- 5) A TRIAC can be turned on with _____.
 - a) Positive voltage at the gate terminal
 - b) Negative voltage at the gate terminal
 - c) Either (a) or (b)
 - d) None of the above
- 6) Which of the following finds applications in speed control of a DC motor?
 - a) FET
 - b) NPN transistor
 - c) SCR
 - d) None of the above
- 7) The curve between V and I of SCR when anode is positive w.r.t cathode and when anode is negative w.r.t cathode are known as _____.
 - a) both as forward characteristics
 - b) both as reverse characteristics
 - c) former as forward characteristics and later as reverse characteristics
 - d) former as reverse characteristics and later as forward characteristics
- 8) Bidirectional semiconductor device is _____.
 - a) Diode
 - b) BJT
 - c) SCR
 - d) TRIAC

- 9) The IGBT resulted in higher switching speed and lower energy losses. It can be used for _____.
- a) Uninterruptible power supplies
 - b) Induction heating system
 - c) Constant voltage and frequency power supplies
 - d) All of these
- 10) A thyristor controlled reactor is used to get _____.
- a) variable resistance
 - b) variable capacitance
 - c) variable inductance
 - d) improved reactive power factor
- 11) Thyristor can be protected from over voltages by using _____.
- a) voltage clamping device
 - b) fuse
 - c) heat sink
 - d) snubber circuit
- 12) For high frequency chopper the device preferred is _____.
- a) Thyristor
 - b) Transistor
 - c) GTO
 - d) IGBT
- 13) In which of the following applications ac drives are used _____.
- a) fans
 - b) blowers
 - c) mill run out tables
 - d) All of these
- 14) During regenerative braking mode, back emf is _____ supply voltage.
- a) less than
 - b) greater than
 - c) equal to
 - d) none

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. **16**

- a) Draw and explain characteristics of DIAC and TRIAC.
- b) Explain overvoltage and overcurrent protection circuit of SCR.
- c) Explain Type D & type E chopper.
- d) Draw single phase full bridge inverter circuit, gate pulses, output voltage waveforms and explain the operation of circuit.
- e) A single-phase half wave diode rectifier feeds power to RL Load. Describe the working of this rectifier with relevant waveforms.

Q.3 Solve any two. **12**

- a) Explain the three phase fully controlled rectifier with the voltage and current waveforms.
- b) Explain the operation of three bridge inverters for 180 degree mode of operation with phase and line voltage waveforms.
- c) A step down dc chopper has resistive load of $R=15\ \Omega$ and input voltage is 200V when the chopper remains ON, its voltage drop is 3V the chopper frequency is 1 kHz. If the duty cycle is 75%, determine:
 - i) Average output voltage
 - ii) RMS Output voltage
 - iii) Chopper efficiency

Section – II

Q.4 Solve any four. **16**

- a) Derive the fundamental torque equation of electric drives.
- b) Explain stator voltage control of three phase induction motor with soft start.
- c) Explain the different parts of the electrical drive system.
- d) What are the different types of electrical braking system and explain any one of them in detail.
- e) Explain closed loop speed control of dc motor drives.

Q.5 Solve any two. **12**

- a) With a neat circuit diagram and waveform explain multiquadrant operation of chopper controlled dc motor drives.
- b) Explain the converter circuit for switched reluctance motor.

- c) A separately-excited d.c. motor has the following parameters:
 $R_a = 0.25 \Omega$, $K_e = 0.62 \text{ V/rpm}$, W_b, Φ (flux per pole) = 175 mWb
 The motor speed is controlled by a single-phase, full-wave bridge rectifier. The firing angle α is set at 45° , and the average speed is 1300 rpm . The applied a.c. Voltage to the bridge is 230 V at 50 Hz . Assuming the motor current is continuous; calculate the armature current drawn by the motor and the steady-state torque for the Fully-controlled bridge shown in figure(a)

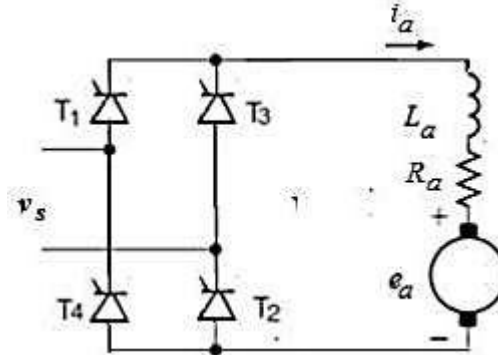


Fig (a): Fully-controlled bridge

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A thyristor controlled reactor is used to get _____.
 a) variable resistance b) variable capacitance
 c) variable inductance d) improved reactive power factor
- 2) Thyristor can be protected from over voltages by using _____.
 a) voltage clamping device b) fuse
 c) heat sink d) snubber circuit
- 3) For high frequency chopper the device preferred is _____.
 a) Thyristor b) Transistor
 c) GTO d) IGBT
- 4) In which of the following applications ac drives are used _____.
 a) fans b) blowers
 c) mill run out tables d) All of these
- 5) During regenerative braking mode, back emf is _____ supply voltage.
 a) less than b) greater than
 c) equal to d) none
- 6) What is meant by drive?
 a) Voltage control b) Motion control
 c) Power control d) None of the above
- 7) For variable speed application the suitable motor is _____.
 a) Squirrel cage I.M. b) Slip ring I.M.
 c) Both a and b d) None
- 8) How many thyristor are required for load commutated inverter for a synchronous motor drive?
 a) 3 b) 6
 c) 12 d) 4
- 9) In a dual converter switch acts like a _____.
 a) Forward motoring b) Reverse motoring
 c) Both a and b d) None of these

- 10) A TRIAC can be turned on with _____.
a) Positive voltage at the gate terminal
b) Negative voltage at the gate terminal
c) Either (a) or (b)
d) None of the above
- 11) Which of the following finds applications in speed control of a DC motor?
a) FET
b) NPN transistor
c) SCR
d) None of the above
- 12) The curve between V and I of SCR when anode is positive w.r.t cathode and when anode is negative w.r.t cathode are known as _____.
a) both as forward characteristics
b) both as reverse characteristics
c) former as forward characteristics and later as reverse characteristics
d) former as reverse characteristics and later as forward characteristics
- 13) Bidirectional semiconductor device is _____.
a) Diode
b) BJT
c) SCR
d) TRIAC
- 14) The IGBT resulted in higher switching speed and lower energy losses. It can be used for _____.
a) Uninterruptible power supplies
b) Induction heating system
c) Constant voltage and frequency power supplies
d) All of these

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Electronics & Industrial Drives (BTN07603)

Day & Date: Monday, 27-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. **16**

- a) Draw and explain characteristics of DIAC and TRIAC.
- b) Explain overvoltage and overcurrent protection circuit of SCR.
- c) Explain Type D & type E chopper.
- d) Draw single phase full bridge inverter circuit, gate pulses, output voltage waveforms and explain the operation of circuit.
- e) A single-phase half wave diode rectifier feeds power to RL Load. Describe the working of this rectifier with relevant waveforms.

Q.3 Solve any two. **12**

- a) Explain the three phase fully controlled rectifier with the voltage and current waveforms.
- b) Explain the operation of three bridge inverters for 180 degree mode of operation with phase and line voltage waveforms.
- c) A step down dc chopper has resistive load of $R=15\ \Omega$ and input voltage is 200V when the chopper remains ON, its voltage drop is 3V the chopper frequency is 1 kHz. If the duty cycle is 75%, determine:
 - i) Average output voltage
 - ii) RMS Output voltage
 - iii) Chopper efficiency

Section – II

Q.4 Solve any four. **16**

- a) Derive the fundamental torque equation of electric drives.
- b) Explain stator voltage control of three phase induction motor with soft start.
- c) Explain the different parts of the electrical drive system.
- d) What are the different types of electrical braking system and explain any one of them in detail.
- e) Explain closed loop speed control of dc motor drives.

Q.5 Solve any two. **12**

- a) With a neat circuit diagram and waveform explain multiquadrant operation of chopper controlled dc motor drives.
- b) Explain the converter circuit for switched reluctance motor.

- c) A separately-excited d.c. motor has the following parameters:
 $R_a = 0.25 \Omega$, $K_e = 0.62 \text{ V/rpm}$, W_b, Φ (flux per pole) = 175 mWb
 The motor speed is controlled by a single-phase, full-wave bridge rectifier. The firing angle α is set at 45° , and the average speed is 1300 rpm . The applied a.c. Voltage to the bridge is 230 V at 50 Hz . Assuming the motor current is continuous; calculate the armature current drawn by the motor and the steady-state torque for the Fully-controlled bridge shown in figure(a)

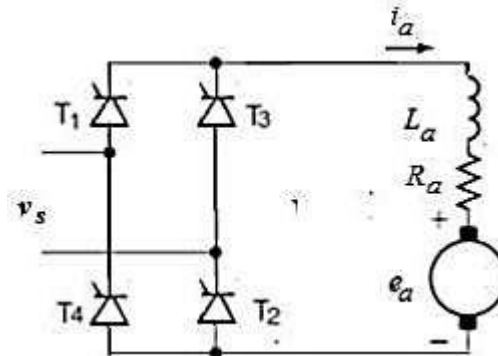


Fig (a): Fully-controlled bridge

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat diagrams wherever necessary.
 - 5) Assume suitable data if necessary.
 - 6) Use of no-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The steady state error of a control system can be reduced by increasing _____.
 - a) gain constant of the system
 - b) time constant of the system
 - c) both gain and time constant of system
 - d) None of these

- 2) Assertion (A): The zeroes on the real axis near the origin are generally avoided in design.
 Reason (R): In a sluggish system introduction of zeroes can improve the transient response _____.
 - a) Both A and R are true and R is correct explanation of A
 - b) Both A and R are true but R is not correct explanation of A
 - c) A is true but R is false
 - d) A is false but R is true

- 3) The forward path transfer function of a unity feedback system is given by $G(s) = 1/(1 + s)^2$. What is the phase margin of the system?
 - a) $-\pi$ rad
 - b) 0 rad
 - c) $\pi/2$ rad
 - d) π rad

- 4) For the given matrix $\dot{x} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix} x$, the eigen values are _____.
 - a) 0,0,0,0
 - b) 1,1,1,1
 - c) 0,0,0,-1
 - d) 0,0,0,1

- 5) The eigen values of a linear system are the locations of _____.
 - a) finite poles
 - b) poles of the system
 - c) zeros of the system
 - d) None of the above

- 6) The property of phase lead compensation is that the _____.
- Overshoot is increased
 - Bandwidth of CL system is reduced
 - Rise-time of CL system is reduced
 - Gain margin is reduced
- 7) A cascaded lag-lead compensator used in linear control systems work as a _____.
- Low pass filter
 - High pass filter
 - Band stop filter
 - Band pass filter
- 8) The process of designing a closed loop control system in state space is by _____.
- regulator
 - lag compensation
 - pole placement
 - None of these
- 9) The eigenvalues of the matrix $(A-BK)$ are called _____.
- open loop poles
 - open loop zeros
 - regulator poles
 - None of these
- 10) The term backlash is associated with _____.
- Servomotors
 - Induction relays
 - Gear trains
 - Any of the above
- 11) The objective of introducing non-linearity in a control system is _____.
- To improve the performance
 - To reduce the cost
 - To make the system simpler
 - both a and b
- 12) The transfer function of zero order hold is _____.
- $1 - e^{Ts}$
 - $1 - e^{-Ts}$
 - $\frac{1 - e^{Ts}}{s}$
 - $\frac{1 - e^{-Ts}}{s}$
- 13) In phase plane _____.
- X1 is represented in x-axis, and X2 in y-axis
 - X2 is represented in x-axis, and X1 in y-axis
 - any one of above
 - None of the above
- 14) The describing function N of a nonlinear control system is a function of _____.
- amplitude of the input
 - frequency of the input
 - initial conditions of the output
 - both a) and b)

Seat No.	
----------	--

Set	P
-----	---

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

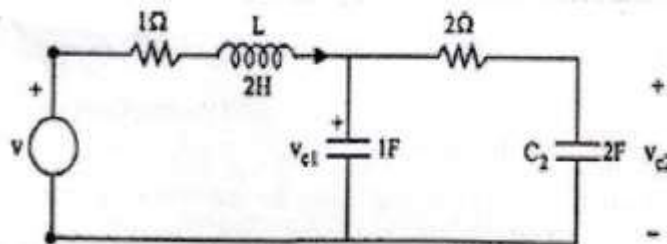
- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data if necessary.
 - 4) Use of no-programmable calculator is allowed.
 - 5) Draw neat diagrams wherever necessary.

Section – I

Q.2 Attempt Four of the following. **16**

- a) Derive the realization of lag compensator circuit with active network.
- b) Explain the procedure to design lead compensator using frequency response analysis.
- c) Explain the procedure to design lag-lead compensator using root locus method.
- d) Obtain state transition matrix for the following system matrix $A = \begin{bmatrix} 0 & -3 \\ 1 & -4 \end{bmatrix}$
- e) Consider a system having state model With $D = 0$, obtain the transfer function:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -3 & 1 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 1 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 1] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$
- f) Obtain the state space representation of the system shown in fig. below:



Take $x_1=iL$ $x_2=V_{c1}$ $x_3=V_{c2}$ $V = u$ and $y=V_{c2}$

Q.3 Attempt Two of the following. **12**

- a) The forward path TF of a unity feedback control system is given by $G(s) = \frac{K}{s(s+2)(s+8)}$. Design a suitable lag compensator so that the system meets the following specifications,
 - 1) Percentage overshoot $\leq 16\%$ for unit step input
 - 2) Steady state error ≤ 0.125 for unit ramp input.
- b) For a unity feedback system with OLTF $G(s) = \frac{2}{s(s+1)(s+2)}$. Design a suitable lag compensator for the system so that the static velocity error constant K_v is 5 sec⁻¹, the PM is at least 40° and the gain margin is at least 10dB.
- c) Check the controllability and observability of the state model given below:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 2] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

Section – II

Q.4 Attempt Four of the following.**16**

- a) The closed-loop poles (eigenvalues) are to be located at $s = -3, s = -7$. Design a state variable feedback. Given that $A = \begin{bmatrix} 0 & 1 \\ -20 & -9 \end{bmatrix}$ and $B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$, $C = [1 \ 0]$.
- b) Explain the limit cycle phenomenon in the nonlinear control systems.
- c) Explain the delta method for the construction of phase trajectories.
- d) Describe the Substitution method for the evaluation of the observer gain matrix.
- e) Derive the pulse transfer function of the closed loop system.
- f) Determine the kind of singularity for the following differential equation.
 $\ddot{Y} - 8\dot{Y} + 17Y = 34$

Q.5 Attempt Two of the following.**12**

- a) Develop the state model in cascade form for the transfer function given below:
 $\frac{Y(s)}{U(s)} = \frac{1}{(s+5)(s+4)}$. Determine the feedback gain matrix for the application of state variable feedback such that the poles are located $s = (01 \pm j2)$.
- b) Derive the describing function of the relay with dead-zone nonlinearity.
- c) Check the stability of the sampled data control system represented by the equation.

$$z^3 - 0.2z^2 - 0.25z + 0.05 = 0$$

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat diagrams wherever necessary.
 - 5) Assume suitable data if necessary.
 - 6) Use of no-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The process of designing a closed loop control system in state space is by _____.
 - a) regulator
 - b) lag compensation
 - c) pole placement
 - d) None of these
- 2) The eigenvalues of the matrix (A-BK) are called _____.
 - a) open loop poles
 - b) open loop zeros
 - c) regulator poles
 - d) None of these
- 3) The term backlash is associated with _____.
 - a) Servomotors
 - b) Induction relays
 - c) Gear trains
 - d) Any of the above
- 4) The objective of introducing non-linearity in a control system is _____.
 - a) To improve the performance
 - b) To reduce the cost
 - c) To make the system simpler
 - d) both a and b
- 5) The transfer function of zero order hold is _____.
 - a) $1 - e^{Ts}$
 - b) $1 - e^{-Ts}$
 - c) $\frac{1 - e^{Ts}}{s}$
 - d) $\frac{1 - e^{-Ts}}{s}$
- 6) In phase plane _____.
 - a) X1 is represented in x-axis, and X2 in y-axis
 - b) X2 is represented in x-axis, and X1 in y-axis
 - c) any one of above
 - d) None of the above
- 7) The describing function N of a nonlinear control system is a function of _____.
 - a) amplitude of the input
 - b) frequency of the input
 - c) initial conditions of the output
 - d) both a) and b)

- 8) The steady state error of a control system can be reduced by increasing ____.
- gain constant of the system
 - time constant of the system
 - both gain and time constant of system
 - None of these
- 9) Assertion (A): The zeroes on the real axis near the origin are generally avoided in design.
Reason (R): In a sluggish system introduction of zeroes can improve the transient response ____.
- Both A and R are true and R is correct explanation of A
 - Both A and R are true but R is not correct explanation of A
 - A is true but R is false
 - A is false but R is true
- 10) The forward path transfer function of a unity feedback system is given by $G(s) = 1/(1 + s)^2$. What is the phase margin of the system?
- $-\pi$ rad
 - 0 rad
 - $\pi/2$ rad
 - π rad
- 11) For the given matrix $\dot{x} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix} x$, the eigen values are ____.
- 0,0,0,0
 - 1,1,1,1
 - 0,0,0,-1
 - 0,0,0,1
- 12) The eigen values of a linear system are the locations of ____.
- finite poles
 - poles of the system
 - zeros of the system
 - None of the above
- 13) The property of phase lead compensation is that the ____.
- Overshoot is increased
 - Bandwidth of CL system is reduced
 - Rise-time of CL system is reduced
 - Gain margin is reduced
- 14) A cascaded lag-lead compensator used in linear control systems work as a ____.
- Low pass filter
 - High pass filter
 - Band stop filter
 - Band pass filter

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

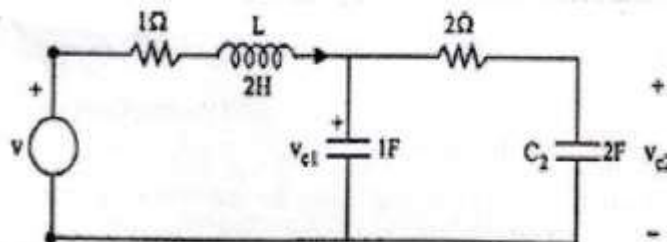
- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data if necessary.
 - 4) Use of no-programmable calculator is allowed.
 - 5) Draw neat diagrams wherever necessary.

Section – I

Q.2 Attempt Four of the following. **16**

- a) Derive the realization of lag compensator circuit with active network.
- b) Explain the procedure to design lead compensator using frequency response analysis.
- c) Explain the procedure to design lag-lead compensator using root locus method.
- d) Obtain state transition matrix for the following system matrix $A = \begin{bmatrix} 0 & -3 \\ 1 & -4 \end{bmatrix}$
- e) Consider a system having state model With $D = 0$, obtain the transfer function:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -3 & 1 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 1 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 1] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$
- f) Obtain the state space representation of the system shown in fig. below:



Take $x_1=iL$ $x_2=V_{c1}$ $x_3=V_{c2}$ $V = u$ and $y=V_{c2}$

Q.3 Attempt Two of the following. **12**

- a) The forward path TF of a unity feedback control system is given by $G(s) = \frac{K}{s(s+2)(s+8)}$. Design a suitable lag compensator so that the system meets the following specifications,
 - 1) Percentage overshoot $\leq 16\%$ for unit step input
 - 2) Steady state error ≤ 0.125 for unit ramp input.
- b) For a unity feedback system with OLTF $G(s) = \frac{2}{s(s+1)(s+2)}$. Design a suitable lag compensator for the system so that the static velocity error constant K_v is 5 sec⁻¹, the PM is at least 40° and the gain margin is at least 10dB.
- c) Check the controllability and observability of the state model given below:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 2] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

Section – II

Q.4 Attempt Four of the following.**16**

- a) The closed-loop poles (eigenvalues) are to be located at $s = -3, s = -7$.
Design a state variable feedback. Given that $A = \begin{bmatrix} 0 & 1 \\ -20 & -9 \end{bmatrix}$ and $B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$,
 $C = [1 \ 0]$.
- b) Explain the limit cycle phenomenon in the nonlinear control systems.
- c) Explain the delta method for the construction of phase trajectories.
- d) Describe the Substitution method for the evaluation of the observer gain matrix.
- e) Derive the pulse transfer function of the closed loop system.
- f) Determine the kind of singularity for the following differential equation.
 $\ddot{Y} - 8\dot{Y} + 17Y = 34$

Q.5 Attempt Two of the following.**12**

- a) Develop the state model in cascade form for the transfer function given below:
 $\frac{Y(s)}{U(s)} = \frac{1}{(s+5)(s+4)}$. Determine the feedback gain matrix for the application of state variable feedback such that the poles are located $s = (01 \pm j2)$.
- b) Derive the describing function of the relay with dead-zone nonlinearity.
- c) Check the stability of the sampled data control system represented by the equation.

$$z^3 - 0.2z^2 - 0.25z + 0.05 = 0$$

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat diagrams wherever necessary.
 - 5) Assume suitable data if necessary.
 - 6) Use of no-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The objective of introducing non-linearity in a control system is _____.
 - a) To improve the performance
 - b) To reduce the cost
 - c) To make the system simpler
 - d) both a and b
- 2) The transfer function of zero order hold is _____.
 - a) $1 - e^{Ts}$
 - b) $1 - e^{-Ts}$
 - c) $\frac{1 - e^{Ts}}{s}$
 - d) $\frac{1 - e^{-Ts}}{s}$
- 3) In phase plane _____.
 - a) X1 is represented in x-axis, and X2 in y-axis
 - b) X2 is represented in x-axis, and X1 in y-axis
 - c) any one of above
 - d) None of the above
- 4) The describing function N of a nonlinear control system is a function of _____.
 - a) amplitude of the input
 - b) frequency of the input
 - c) initial conditions of the output
 - d) both a) and b)
- 5) The steady state error of a control system can be reduced by increasing _____.
 - a) gain constant of the system
 - b) time constant of the system
 - c) both gain and time constant of system
 - d) None of these
- 6) Assertion (A): The zeroes on the real axis near the origin are generally avoided in design.
 Reason (R): In a sluggish system introduction of zeroes can improve the transient response _____.
 - a) Both A and R are true and R is correct explanation of A
 - b) Both A and R are true but R is not correct explanation of A
 - c) A is true but R is false
 - d) A is false but R is true

Seat
No.

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Use of no-programmable calculator is allowed.
 5) Draw neat diagrams wherever necessary.

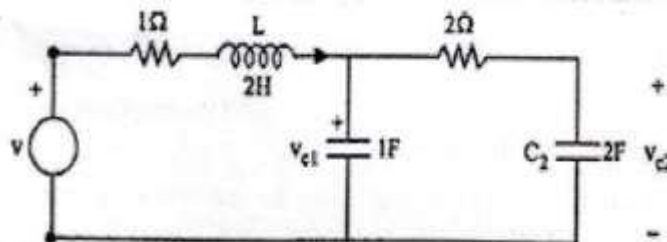
Section – I

Q.2 Attempt Four of the following.

16

- Derive the realization of lag compensator circuit with active network.
- Explain the procedure to design lead compensator using frequency response analysis.
- Explain the procedure to design lag-lead compensator using root locus method.
- Obtain state transition matrix for the following system matrix $A = \begin{bmatrix} 0 & -3 \\ 1 & -4 \end{bmatrix}$
- Consider a system having state model With $D = 0$, obtain the transfer function:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -3 & 1 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 1 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 1] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$
- Obtain the state space representation of the system shown in fig. below:



Take $x_1=iL$ $x_2=V_{c1}$ $x_3=V_{c2}$ $V = u$ and $y=V_{c2}$

Q.3 Attempt Two of the following.

12

- The forward path TF of a unity feedback control system is given by $G(s) = \frac{K}{s(s+2)(s+8)}$. Design a suitable lag compensator so that the system meets the following specifications,
 - Percentage overshoot $\leq 16\%$ for unit step input
 - Steady state error ≤ 0.125 for unit ramp input.
- For a unity feedback system with OLTF $G(s) = \frac{2}{s(s+1)(s+2)}$. Design a suitable lag compensator for the system so that the static velocity error constant K_v is 5 sec⁻¹, the PM is at least 40° and the gain margin is at least 10dB.
- Check the controllability and observability of the state model given below:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 2] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

Section – II

Q.4 Attempt Four of the following.**16**

- a) The closed-loop poles (eigenvalues) are to be located at $s = -3, s = -7$.
Design a state variable feedback. Given that $A = \begin{bmatrix} 0 & 1 \\ -20 & -9 \end{bmatrix}$ and $B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$,
 $C = [1 \ 0]$.
- b) Explain the limit cycle phenomenon in the nonlinear control systems.
- c) Explain the delta method for the construction of phase trajectories.
- d) Describe the Substitution method for the evaluation of the observer gain matrix.
- e) Derive the pulse transfer function of the closed loop system.
- f) Determine the kind of singularity for the following differential equation.
 $\ddot{Y} - 8\dot{Y} + 17Y = 34$

Q.5 Attempt Two of the following.**12**

- a) Develop the state model in cascade form for the transfer function given below:
 $\frac{Y(s)}{U(s)} = \frac{1}{(s+5)(s+4)}$. Determine the feedback gain matrix for the application of state variable feedback such that the poles are located $s = (01 \pm j2)$.
- b) Derive the describing function of the relay with dead-zone nonlinearity.
- c) Check the stability of the sampled data control system represented by the equation.

$$z^3 - 0.2z^2 - 0.25z + 0.05 = 0$$

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat diagrams wherever necessary.
 - 5) Assume suitable data if necessary.
 - 6) Use of no-programmable calculator is allowed.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The property of phase lead compensation is that the _____.
 a) Overshoot is increased
 b) Bandwidth of CL system is reduced
 c) Rise-time of CL system is reduced
 d) Gain margin is reduced
- 2) A cascaded lag-lead compensator used in linear control systems work as a _____.
 a) Low pass filter
 b) High pass filter
 c) Band stop filter
 d) Band pass filter
- 3) The process of designing a closed loop control system in state space is by _____.
 a) regulator
 b) lag compensation
 c) pole placement
 d) None of these
- 4) The eigenvalues of the matrix (A-BK) are called _____.
 a) open loop poles
 b) open loop zeros
 c) regulator poles
 d) None of these
- 5) The term backlash is associated with _____.
 a) Servomotors
 b) Induction relays
 c) Gear trains
 d) Any of the above
- 6) The objective of introducing non-linearity in a control system is _____.
 a) To improve the performance
 b) To reduce the cost
 c) To make the system simpler
 d) both a and b
- 7) The transfer function of zero order hold is _____.
 a) $1 - e^{Ts}$
 b) $1 - e^{-Ts}$
 c) $\frac{1 - e^{Ts}}{s}$
 d) $\frac{1 - e^{-Ts}}{s}$

- 8) In phase plane _____.
- X1 is represented in x-axis, and X2 in y-axis
 - X2 is represented in x-axis, and X1 in y-axis
 - any one of above
 - None of the above
- 9) The describing function N of a nonlinear control system is a function of ____.
- amplitude of the input
 - frequency of the input
 - initial conditions of the output
 - both a) and b)
- 10) The steady state error of a control system can be reduced by increasing ____.
- gain constant of the system
 - time constant of the system
 - both gain and time constant of system
 - None of these
- 11) Assertion (A): The zeroes on the real axis near the origin are generally avoided in design.
Reason (R): In a sluggish system introduction of zeroes can improve the transient response _____.
- Both A and R are true and R is correct explanation of A
 - Both A and R are true but R is not correct explanation of A
 - A is true but R is false
 - A is false but R is true
- 12) The forward path transfer function of a unity feedback system is given by $G(s) = 1/(1 + s)^2$. What is the phase margin of the system?
- $-\pi$ rad
 - 0 rad
 - $\pi/2$ rad
 - π rad
- 13) For the given matrix $\dot{x} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix} x$, the eigen values are _____.
- 0,0,0,0
 - 1,1,1,1
 - 0,0,0,-1
 - 0,0,0,1
- 14) The eigen values of a linear system are the locations of _____.
- finite poles
 - poles of the system
 - zeros of the system
 - None of the above

Seat No.	
----------	--

Set	S
-----	---

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Control Systems (BTN07604)

Day & Date: Wednesday, 29-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

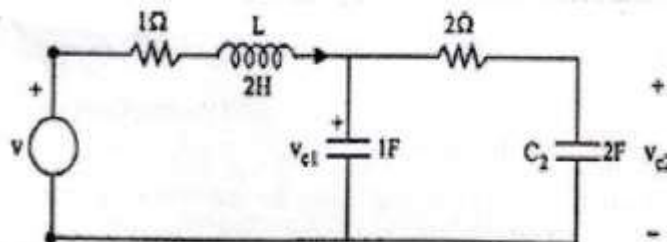
- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data if necessary.
 - 4) Use of no-programmable calculator is allowed.
 - 5) Draw neat diagrams wherever necessary.

Section – I

Q.2 Attempt Four of the following. **16**

- a) Derive the realization of lag compensator circuit with active network.
- b) Explain the procedure to design lead compensator using frequency response analysis.
- c) Explain the procedure to design lag-lead compensator using root locus method.
- d) Obtain state transition matrix for the following system matrix $A = \begin{bmatrix} 0 & -3 \\ 1 & -4 \end{bmatrix}$
- e) Consider a system having state model With $D = 0$, obtain the transfer function:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -3 & 1 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 1 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 1] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$
- f) Obtain the state space representation of the system shown in fig. below:



Take $x_1=iL$ $x_2=V_{c1}$ $x_3=V_{c2}$ $V = u$ and $y=V_{c2}$

Q.3 Attempt Two of the following. **12**

- a) The forward path TF of a unity feedback control system is given by $G(s) = \frac{K}{s(s+2)(s+8)}$. Design a suitable lag compensator so that the system meets the following specifications,
 - 1) Percentage overshoot $\leq 16\%$ for unit step input
 - 2) Steady state error ≤ 0.125 for unit ramp input.
- b) For a unity feedback system with OLTF $G(s) = \frac{2}{s(s+1)(s+2)}$. Design a suitable lag compensator for the system so that the static velocity error constant K_v is 5 sec⁻¹, the PM is at least 40° and the gain margin is at least 10dB.
- c) Check the controllability and observability of the state model given below:

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \end{bmatrix} u(t) \quad Y = [1 \ 2] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

Section – II

Q.4 Attempt Four of the following.**16**

- a) The closed-loop poles (eigenvalues) are to be located at $s = -3, s = -7$.
Design a state variable feedback. Given that $A = \begin{bmatrix} 0 & 1 \\ -20 & -9 \end{bmatrix}$ and $B = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$,
 $C = [1 \ 0]$.
- b) Explain the limit cycle phenomenon in the nonlinear control systems.
- c) Explain the delta method for the construction of phase trajectories.
- d) Describe the Substitution method for the evaluation of the observer gain matrix.
- e) Derive the pulse transfer function of the closed loop system.
- f) Determine the kind of singularity for the following differential equation.
 $\ddot{Y} - 8\dot{Y} + 17Y = 34$

Q.5 Attempt Two of the following.**12**

- a) Develop the state model in cascade form for the transfer function given below:
 $\frac{Y(s)}{U(s)} = \frac{1}{(s+5)(s+4)}$. Determine the feedback gain matrix for the application of state variable feedback such that the poles are located $s = (01 \pm j2)$.
- b) Derive the describing function of the relay with dead-zone nonlinearity.
- c) Check the stability of the sampled data control system represented by the equation.

$$z^3 - 0.2z^2 - 0.25z + 0.05 = 0$$

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) _____ is a program that acts as an intermediary between a user of a computer and the computer hardware.
 - a) An operating system
 - b) An Overview System
 - c) A Computer Organization
 - d) A Computer Graphics
- 2) The operating system acts as the _____ of these resources and allocates them to specific programs and users as necessary for tasks.
 - a) Manager
 - b) Conductor
 - c) Router
 - d) Orientor
- 3) As hardware costs have decreased, it has once again become feasible to have a computer system dedicated to a single user. These types of computer systems are usually referred to a _____.
 - a) personal computers (Pcs)
 - b) Mainframe Computers (Mcs)
 - c) Super Computers(SCs)
 - d) Babbage
- 4) _____: The process is being created.
 - a) New
 - b) Running
 - c) Waiting
 - d) Ready
- 5) _____: Instructions are being executed.
 - a) New
 - b) Running
 - c) Waiting
 - d) Ready
- 6) An I/O-bound program would typically have many very _____ - CPU bursts.
 - a) Short
 - b) Long
 - c) Medium
 - d) Perfect
- 7) Which process can be affected by other processes executing in the system?
 - a) cooperating process
 - b) child process
 - c) parent process
 - d) init process

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) Explain Operating System with its goals Simple Batch System.
 - b) Explain Concept of Process along with its life cycle.
 - c) Explain Semaphores
 - d) Explain Multiple processor scheduling.
- Q.3 Attempt Any Two. 16**
- a) Explain Process Scheduling along with Long term scheduler, medium term scheduler, short term scheduler.
 - b) Explain Inter process Communication in detail.
 - c) Explain personal computer system, parallel system.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Explain Deadlock along with System model.
 - b) Explain characterization of deadlock.
 - c) Explain Logical Versus Physical Address space.
 - d) Explain concept of Demand paging.
- Q.5 Attempt Any Two. 16**
- a) Explain Deadlock Which are the necessary conditions for Deadlock?
 - b) Explain page fault handling with neat diagram.
 - c) Explain the ways for prevention of deadlock.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following condition is required for deadlock to be possible?
 - a) mutual exclusion
 - b) a process may hold allocated resources while awaiting assignment of other resources
 - c) no resource can be forcibly removed from a process holding it
 - d) all of the mentioned
- 2) Binding of instructions and data to memory addresses can be done at _____.
 - a) Compile time
 - b) Load time
 - c) Execution time
 - d) All of these
- 3) Dynamic loading is:
 - a) loading multiple routines dynamically
 - b) loading a routine only when it is called
 - c) loading multiple routines randomly
 - d) None of these
- 4) The advantage of dynamic loading is that:
 - a) a used routine is used multiple times
 - b) an unused routine is never loaded
 - c) CPU utilization increases
 - d) All of these
- 5) _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
 - a) Paging
 - b) Demand paging
 - c) Segmentation
 - d) Swapping
- 6) Swap space exists in _____.
 - a) primary memory
 - b) secondary memory
 - c) CPU
 - d) none of the mentioned
- 7) Effective access time is directly proportional to _____.
 - a) page-fault rate
 - b) hit ratio
 - c) memory access time
 - d) none of the mentioned

- 8) _____ is a program that acts as an intermediary between a user of a computer and the computer hardware.
- a) An operating system
 - b) An Overview System
 - c) A Computer Organization
 - d) A Computer Graphics
- 9) The operating system acts as the _____ of these resources and allocates them to specific programs and users as necessary for tasks.
- a) Manager
 - b) Conductor
 - c) Router
 - d) Orientor
- 10) As hardware costs have decreased, it has once again become feasible to have a computer system dedicated to a single user. These types of computer systems are usually referred to a _____.
- a) personal computers (Pcs)
 - b) Mainframe Computers (Mcs)
 - c) Super Computers(SCs)
 - d) Babbage
- 11) _____: The process is being created.
- a) New
 - b) Running
 - c) Waiting
 - d) Ready
- 12) _____: Instructions are being executed.
- a) New
 - b) Running
 - c) Waiting
 - d) Ready
- 13) An I/O-bound program would typically have many very _____ - CPU bursts.
- a) Short
 - b) Long
 - c) Medium
 - d) Perfect
- 14) Which process can be affected by other processes executing in the system?
- a) cooperating process
 - b) child process
 - c) parent process
 - d) init process

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three.** **12**
- a) Explain Operating System with its goals Simple Batch System.
 - b) Explain Concept of Process along with its life cycle.
 - c) Explain Semaphores
 - d) Explain Multiple processor scheduling.
- Q.3 Attempt Any Two.** **16**
- a) Explain Process Scheduling along with Long term scheduler, medium term scheduler, short term scheduler.
 - b) Explain Inter process Communication in detail.
 - c) Explain personal computer system, parallel system.

Section – II

- Q.4 Attempt Any Three.** **12**
- a) Explain Deadlock along with System model.
 - b) Explain characterization of deadlock.
 - c) Explain Logical Versus Physical Address space.
 - d) Explain concept of Demand paging.
- Q.5 Attempt Any Two.** **16**
- a) Explain Deadlock Which are the necessary conditions for Deadlock?
 - b) Explain page fault handling with neat diagram.
 - c) Explain the ways for prevention of deadlock.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The advantage of dynamic loading is that:
 - a) a used routine is used multiple times
 - b) an unused routine is never loaded
 - c) CPU utilization increases
 - d) All of these
- 2) _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
 - a) Paging
 - b) Demand paging
 - c) Segmentation
 - d) Swapping
- 3) Swap space exists in _____.
 - a) primary memory
 - b) secondary memory
 - c) CPU
 - d) none of the mentioned
- 4) Effective access time is directly proportional to _____.
 - a) page-fault rate
 - b) hit ratio
 - c) memory access time
 - d) none of the mentioned
- 5) _____ is a program that acts as an intermediary between a user of a computer and the computer hardware.
 - a) An operating system
 - b) An Overview System
 - c) A Computer Organization
 - d) A Computer Graphics
- 6) The operating system acts as the _____ of these resources and allocates them to specific programs and users as necessary for tasks.
 - a) Manager
 - b) Conductor
 - c) Router
 - d) Orientor
- 7) As hardware costs have decreased, it has once again become feasible to have a computer system dedicated to a single user. These types of computer systems are usually referred to a _____.
 - a) personal computers (Pcs)
 - b) Mainframe Computers (Mcs)
 - c) Super Computers(SCs)
 - d) Babbage

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Three. 12

- a) Explain Operating System with its goals Simple Batch System.
- b) Explain Concept of Process along with its life cycle.
- c) Explain Semaphores
- d) Explain Multiple processor scheduling.

Q.3 Attempt Any Two. 16

- a) Explain Process Scheduling along with Long term scheduler, medium term scheduler, short term scheduler.
- b) Explain Inter process Communication in detail.
- c) Explain personal computer system, parallel system.

Section – II

Q.4 Attempt Any Three. 12

- a) Explain Deadlock along with System model.
- b) Explain characterization of deadlock.
- c) Explain Logical Versus Physical Address space.
- d) Explain concept of Demand paging.

Q.5 Attempt Any Two. 16

- a) Explain Deadlock Which are the necessary conditions for Deadlock?
- b) Explain page fault handling with neat diagram.
- c) Explain the ways for prevention of deadlock.

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) An I/O-bound program would typically have many very _____ - CPU bursts.
 - a) Short
 - b) Long
 - c) Medium
 - d) Perfect
- 2) Which process can be affected by other processes executing in the system?
 - a) cooperating process
 - b) child process
 - c) parent process
 - d) init process
- 3) Which of the following condition is required for deadlock to be possible?
 - a) mutual exclusion
 - b) a process may hold allocated resources while awaiting assignment of other resources
 - c) no resource can be forcibly removed from a process holding it
 - d) all of the mentioned
- 4) Binding of instructions and data to memory addresses can be done at _____.
 - a) Compile time
 - b) Load time
 - c) Execution time
 - d) All of these
- 5) Dynamic loading is:
 - a) loading multiple routines dynamically
 - b) loading a routine only when it is called
 - c) loading multiple routines randomly
 - d) None of these
- 6) The advantage of dynamic loading is that:
 - a) a used routine is used multiple times
 - b) an unused routine is never loaded
 - c) CPU utilization increases
 - d) All of these
- 7) _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
 - a) Paging
 - b) Demand paging
 - c) Segmentation
 - d) Swapping

Seat No.	
-----------------	--

T. Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Operating Systems (BTN07606)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) Explain Operating System with its goals Simple Batch System.
 - b) Explain Concept of Process along with its life cycle.
 - c) Explain Semaphores
 - d) Explain Multiple processor scheduling.
- Q.3 Attempt Any Two. 16**
- a) Explain Process Scheduling along with Long term scheduler, medium term scheduler, short term scheduler.
 - b) Explain Inter process Communication in detail.
 - c) Explain personal computer system, parallel system.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Explain Deadlock along with System model.
 - b) Explain characterization of deadlock.
 - c) Explain Logical Versus Physical Address space.
 - d) Explain concept of Demand paging.
- Q.5 Attempt Any Two. 16**
- a) Explain Deadlock Which are the necessary conditions for Deadlock?
 - b) Explain page fault handling with neat diagram.
 - c) Explain the ways for prevention of deadlock.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) What is extraterrestrial radiation?
 - a) Intensity of sun at the top of earth's atmosphere
 - b) Intensity of sun at the top of its atmosphere
 - c) Energy of sun at the top of earth's atmosphere
 - d) Force of sun on earth
- 2) Sun generates _____ Calories/second.

a) 9×10^{25}	b) 01×10^{25}
c) 10×10^{25}	d) 4×10^{25}
- 3) Which of the following power plant is free from environmental pollution problem?

a) Thermal Power Plant	b) Nuclear Power Plant
c) Hydro Power Plant	d) Diesel Power Plant
- 4) What is the standard value of solar constant?

a) 1 KW/m ²	b) 1.367 KW/m ²
c) 1.5 KW/m ²	d) 5 KW/m ²
- 5) The current density of a photo voltaic cell ranges from _____.

a) 10 - 20 mA/cm ²	b) 40 - 50 mA/cm ²
c) 20 - 40 mA/cm ²	d) 60 - 100 mA/cm ²
- 6) If the speed of a wind stream remain unchanged while passing through the rotor then _____.
 - a) large power will be generated
 - b) Zero power will be generated
 - c) the Speed of the rotor will be extremely high
 - d) the flow is called as a stalled flow
- 7) Bio-diesel is _____.
 - a) Obtained from fermentation of sugars
 - b) Obtained from pyrolysis process
 - c) Exudates of plants
 - d) An upgraded vegetable oil

- 8) _____ is called as the bio gas.
- | | |
|----------------|----------------|
| a) Bio ethanol | b) Bio methane |
| c) Bio diesel | d) Bio butanol |
- 9) The geothermal energy is the _____ from the earth.
- | | |
|------------|------------|
| a) Heat | b) Light |
| c) Photons | d) Protons |
- 10) Two-basin tidal schemes _____.
- | |
|--------------------------------------------------|
| a) Are more economical than single basin schemes |
| b) Operate on ebb cycles in both basins |
| c) Produce less uniform power |
| d) Produce more uniform power |
- 11) The use of Pelton wheel is desirable for the conditions of _____.
- | |
|---------------------------------|
| a) Low head and high discharge |
| b) High head and low discharge |
| c) High head and high discharge |
| d) Low head and low discharge |
- 12) OTEC stands for _____.
- | |
|------------------------------------------|
| a) Ocean Thermal Energy Conversion |
| b) Ocean Thermal Energy Component |
| c) Ocean Thermodynamic Energy Conversion |
| d) Ocean Thermodynamic Energy Component |
- 13) In Carnot cycle the heat receive at _____ temperature.
- | | |
|-------------|----------------------|
| a) Lower | b) Higher |
| c) Constant | d) none of the above |
- 14) The molten rock within the earth is _____.
- | | |
|----------------|----------------|
| a) Igneous | b) Magma |
| c) Sedimentary | d) Metamorphic |

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. 16

- Differentiate between Conventional and Non-Conventional sources of energy.
- With the help of neat diagram explain terrestrial and extra-terrestrial solar radiation.
- With neat diagrams explain classification of concentrating type collectors.
- What is solar constant? Explain.
- Define the terms:
 - Tip speed ratio
 - swept area
 - solidity
 - cut-in, cut-out and rated speed
- Draw and describe horizontal axis wind mills.

Q.3 Attempt any two. 12

- Explain savonius and darrieus wind mill operation with diagram.
- Classify the instruments for measuring solar radiation. Explain any one in detail.
- Different methods of solar energy storage.

Section – II

Q.4 Attempt any four. 16

- Distinguish between fixed dome type & Floating drum type biogas plant.
- With the help of bacterial reactions explain principle of biogas generation.
- Explain the need for DEC.
- Explain the different types of geothermal resources.
- Draw and describe the working of open cycle OTEC system.
- Write short note on Carnot cycle.

Q.5 Attempt any two. 12

- Explain fixed drum type biogas plant.
- Describe the working of closed cycle OTEC system, also explain the advantages and disadvantages of Tidal power.
- Explain tidal energy conversion system with proper diagram.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) _____ is called as the bio gas.
 - a) Bio ethanol
 - b) Bio methane
 - c) Bio diesel
 - d) Bio butanol
- 2) The geothermal energy is the _____ from the earth.
 - a) Heat
 - b) Light
 - c) Photons
 - d) Protons
- 3) Two-basin tidal schemes _____.
 - a) Are more economical than single basin schemes
 - b) Operate on ebb cycles in both basins
 - c) Produce less uniform power
 - d) Produce more uniform power
- 4) The use of Pelton wheel is desirable for the conditions of _____.
 - a) Low head and high discharge
 - b) High head and low discharge
 - c) High head and high discharge
 - d) Low head and low discharge
- 5) OTEC stands for _____.
 - a) Ocean Thermal Energy Conversion
 - b) Ocean Thermal Energy Component
 - c) Ocean Thermodynamic Energy Conversion
 - d) Ocean Thermodynamic Energy Component
- 6) In Carnot cycle the heat receive at _____ temperature.
 - a) Lower
 - b) Higher
 - c) Constant
 - d) none of the above
- 7) The molten rock within the earth is _____.
 - a) Igneous
 - b) Magma
 - c) Sedimentary
 - d) Metamorphic

- 8) What is extraterrestrial radiation?
- a) Intensity of sun at the top of earth's atmosphere
 - b) Intensity of sun at the top of its atmosphere
 - c) Energy of sun at the top of earth's atmosphere
 - d) Force of sun on earth
- 9) Sun generates _____ Calories/second.
- a) 9×10^{25}
 - b) 01×10^{25}
 - c) 10×10^{25}
 - d) 4×10^{25}
- 10) Which of the following power plant is free from environmental pollution problem?
- a) Thermal Power Plant
 - b) Nuclear Power Plant
 - c) Hydro Power Plant
 - d) Diesel Power Plant
- 11) What is the standard value of solar constant?
- a) 1 KW/m²
 - b) 1.367 KW/m²
 - c) 1.5 KW/m²
 - d) 5 KW/m²
- 12) The current density of a photo voltaic cell ranges from _____.
- a) 10 - 20 mA/cm²
 - b) 40 - 50 mA/cm²
 - c) 20 - 40 mA/cm²
 - d) 60 - 100 mA/cm²
- 13) If the speed of a wind stream remain unchanged while passing through the rotor then _____.
- a) large power will be generated
 - b) Zero power will be generated
 - c) the Speed of the rotor will be extremely high
 - d) the flow is called as a stalled flow
- 14) Bio-diesel is _____.
- a) Obtained from fermentation of sugars
 - b) Obtained from pyrolysis process
 - c) Exudates of plants
 - d) An upgraded vegetable oil

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. 16

- a) Differentiate between Conventional and Non-Conventional sources of energy.
- b) With the help of neat diagram explain terrestrial and extra-terrestrial solar radiation.
- c) With neat diagrams explain classification of concentrating type collectors.
- d) What is solar constant? Explain.
- e) Define the terms:
 - i) Tip speed ratio
 - ii) swept area
 - iii) solidity
 - iv) cut-in, cut-out and rated speed
- f) Draw and describe horizontal axis wind mills.

Q.3 Attempt any two. 12

- a) Explain savonius and darrieus wind mill operation with diagram.
- b) Classify the instruments for measuring solar radiation. Explain any one in detail.
- c) Different methods of solar energy storage.

Section – II

Q.4 Attempt any four. 16

- a) Distinguish between fixed dome type & Floating drum type biogas plant.
- b) With the help of bacterial reactions explain principle of biogas generation.
- c) Explain the need for DEC.
- d) Explain the different types of geothermal resources.
- e) Draw and describe the working of open cycle OTEC system.
- f) Write short note on Carnot cycle.

Q.5 Attempt any two. 12

- a) Explain fixed drum type biogas plant.
- b) Describe the working of closed cycle OTEC system, also explain the advantages and disadvantages of Tidal power.
- c) Explain tidal energy conversion system with proper diagram.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) The use of Pelton wheel is desirable for the conditions of _____.
 - a) Low head and high discharge
 - b) High head and low discharge
 - c) High head and high discharge
 - d) Low head and low discharge
- 2) OTEC stands for _____.
 - a) Ocean Thermal Energy Conversion
 - b) Ocean Thermal Energy Component
 - c) Ocean Thermodynamic Energy Conversion
 - d) Ocean Thermodynamic Energy Component
- 3) In Carnot cycle the heat receive at _____ temperature.
 - a) Lower
 - b) Higher
 - c) Constant
 - d) none of the above
- 4) The molten rock within the earth is _____.
 - a) Igneous
 - b) Magma
 - c) Sedimentary
 - d) Metamorphic
- 5) What is extraterrestrial radiation?
 - a) Intensity of sun at the top of earth's atmosphere
 - b) Intensity of sun at the top of its atmosphere
 - c) Energy of sun at the top of earth's atmosphere
 - d) Force of sun on earth
- 6) Sun generates _____ Calories/second.
 - a) 9×10^{25}
 - b) 01×10^{25}
 - c) 10×10^{25}
 - d) 4×10^{25}
- 7) Which of the following power plant is free from environmental pollution problem?
 - a) Thermal Power Plant
 - b) Nuclear Power Plant
 - c) Hydro Power Plant
 - d) Diesel Power Plant
- 8) What is the standard value of solar constant?
 - a) 1 KW/m²
 - b) 1.367 KW/m²
 - c) 1.5 KW/m²
 - d) 5 KW/m²

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. 16

- Differentiate between Conventional and Non-Conventional sources of energy.
- With the help of neat diagram explain terrestrial and extra-terrestrial solar radiation.
- With neat diagrams explain classification of concentrating type collectors.
- What is solar constant? Explain.
- Define the terms:
 - Tip speed ratio
 - swept area
 - solidity
 - cut-in, cut-out and rated speed
- Draw and describe horizontal axis wind mills.

Q.3 Attempt any two. 12

- Explain savonius and darrieus wind mill operation with diagram.
- Classify the instruments for measuring solar radiation. Explain any one in detail.
- Different methods of solar energy storage.

Section – II

Q.4 Attempt any four. 16

- Distinguish between fixed dome type & Floating drum type biogas plant.
- With the help of bacterial reactions explain principle of biogas generation.
- Explain the need for DEC.
- Explain the different types of geothermal resources.
- Draw and describe the working of open cycle OTEC system.
- Write short note on Carnot cycle.

Q.5 Attempt any two. 12

- Explain fixed drum type biogas plant.
- Describe the working of closed cycle OTEC system, also explain the advantages and disadvantages of Tidal power.
- Explain tidal energy conversion system with proper diagram.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) If the speed of a wind stream remain unchanged while passing through the rotor then _____.
 - a) large power will be generated
 - b) Zero power will be generated
 - c) the Speed of the rotor will be extremely high
 - d) the flow is called as a stalled flow
- 2) Bio-diesel is _____.
 - a) Obtained from fermentation of sugars
 - b) Obtained from pyrolysis process
 - c) Exudates of plants
 - d) An upgraded vegetable oil
- 3) _____ is called as the bio gas.

a) Bio ethanol	b) Bio methane
c) Bio diesel	d) Bio butanol
- 4) The geothermal energy is the _____ from the earth.

a) Heat	b) Light
c) Photons	d) Protons
- 5) Two-basin tidal schemes _____.
 - a) Are more economical than single basin schemes
 - b) Operate on ebb cycles in both basins
 - c) Produce less uniform power
 - d) Produce more uniform power
- 6) The use of Pelton wheel is desirable for the conditions of _____.
 - a) Low head and high discharge
 - b) High head and low discharge
 - c) High head and high discharge
 - d) Low head and low discharge

- 7) OTEC stands for _____.
- a) Ocean Thermal Energy Conversion
 - b) Ocean Thermal Energy Component
 - c) Ocean Thermodynamic Energy Conversion
 - d) Ocean Thermodynamic Energy Component
- 8) In Carnot cycle the heat receive at _____ temperature.
- a) Lower
 - b) Higher
 - c) Constant
 - d) none of the above
- 9) The molten rock within the earth is _____.
- a) Igneous
 - b) Magma
 - c) Sedimentary
 - d) Metamorphic
- 10) What is extraterrestrial radiation?
- a) Intensity of sun at the top of earth's atmosphere
 - b) Intensity of sun at the top of its atmosphere
 - c) Energy of sun at the top of earth's atmosphere
 - d) Force of sun on earth
- 11) Sun generates _____ Calories/second.
- a) 9×10^{25}
 - b) 01×10^{25}
 - c) 10×10^{25}
 - d) 4×10^{25}
- 12) Which of the following power plant is free from environmental pollution problem?
- a) Thermal Power Plant
 - b) Nuclear Power Plant
 - c) Hydro Power Plant
 - d) Diesel Power Plant
- 13) What is the standard value of solar constant?
- a) 1 KW/m²
 - b) 1.367 KW/m²
 - c) 1.5 KW/m²
 - d) 5 KW/m²
- 14) The current density of a photo voltaic cell ranges from _____.
- a) 10 - 20 mA/cm²
 - b) 40 - 50 mA/cm²
 - c) 20 - 40 mA/cm²
 - d) 60 - 100 mA/cm²

Seat No.	
-----------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (BTN07607)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. 16

- a) Differentiate between Conventional and Non-Conventional sources of energy.
- b) With the help of neat diagram explain terrestrial and extra-terrestrial solar radiation.
- c) With neat diagrams explain classification of concentrating type collectors.
- d) What is solar constant? Explain.
- e) Define the terms:
 - i) Tip speed ratio
 - ii) swept area
 - iii) solidity
 - iv) cut-in, cut-out and rated speed
- f) Draw and describe horizontal axis wind mills.

Q.3 Attempt any two. 12

- a) Explain savonius and darrieus wind mill operation with diagram.
- b) Classify the instruments for measuring solar radiation. Explain any one in detail.
- c) Different methods of solar energy storage.

Section – II

Q.4 Attempt any four. 16

- a) Distinguish between fixed dome type & Floating drum type biogas plant.
- b) With the help of bacterial reactions explain principle of biogas generation.
- c) Explain the need for DEC.
- d) Explain the different types of geothermal resources.
- e) Draw and describe the working of open cycle OTEC system.
- f) Write short note on Carnot cycle.

Q.5 Attempt any two. 12

- a) Explain fixed drum type biogas plant.
- b) Describe the working of closed cycle OTEC system, also explain the advantages and disadvantages of Tidal power.
- c) Explain tidal energy conversion system with proper diagram.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A LASER Means _____.
 - a) Light amplification some emit radiation
 - b) Light amplification by stimulated emission of radiation
 - c) Both a & b
 - d) Light activated stimulated emission of radiation
- 2) Optical fiber is the technology associated with data transmission using _____.
 - a) Air
 - b) Light pulses
 - c) Waves
 - d) Both a & c
- 3) Optical fiber is used by telecommunications companies to transmit _____.
 - a) Telephone signals
 - b) Telephone signals, Internet communication and cable television signals
 - c) Internet communication and cable television signals
 - d) None of the above
- 4) How do you measure bending losses in optical fiber?
 - a) By taking the logarithmic ratio of input power (P_i) to the output power (P_o)
 - b) By taking the logarithmic of Output power (P_o)
 - c) By taking the logarithmic of Input power (P_i)
 - d) Only Power
- 5) DWDM Means _____.
 - a) Data wavelength-division multiplexing
 - b) Dense wavelength-division multiplexing
 - c) Dense wavelength-diverted multiplexing
 - d) Dense wavelength-division manager
- 6) A light-emitting diode (LED) is a semiconductor device that emit light when _____.
 - a) Output reaches saturation level
 - b) Current flows through it
 - c) Output will be a sine waveform
 - d) Output will be a non-sinusoidal waveform

- 7) Fiber optic Ethernet transmits data signals over _____.
a) Fiber cables rather than the copper cables of traditional Ethernet wiring
b) Copper cables
c) Wired Cable
d) All of the mentioned
- 8) In an optical network, which topologies are used?
a) Ring
b) Star
c) Bus
d) All of the above
- 9) Dense wavelength division multiplexing (DWDM) is a _____.
a) Wired communication technique
b) fiber-optic transmission technique
c) Mixing techniques
d) Protocol
- 10) A major consideration with all types of fiber, fiber connection is the _____.
a) optical loss encountered at the interface
b) air loss
c) heat loss
d) None of the above
- 11) Fiber splicing is the process of _____.
a) Temporary joining of two fibers
b) permanently joining two fibers together
c) permanent and temporary joint
d) None of the above
- 12) An optical amplifier is a device that amplifies _____.
a) Electrical signal
b) an optical signal
c) Both a and b
d) None of the above
- 13) Wavelength division multiplexing (WDM) is a _____.
a) Technique of multiplexing multiple ray
b) Technique of multiplexing multiple optical carrier signals
c) Both a) and b)
d) None of the above
- 14) Optical modulators are widely used with superior performance _____.
a) Only Laboratory
b) including optical communications, signal processing, and optical measurements
c) time Measurement
d) None of the above

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) Draw the block diagram of generalized optical fiber communication system. Explain.
- b) Write any 4 advantages & disadvantages of optical Fiber communication.
- c) What is scattering losses? Enlist its types. Explain any one in details.
- d) Explain optical emission in semiconductor.
- e) What is light modulation? Explain Shortly.

Q.3 Solve any two **12**

- a) Explain the process of light amplification in a LASER.
- b) Explain optical fiber waveguides.
- c) Explain LED structure.

Section – II

Q.4 Solve any four **16**

- a) What is the requirement of optical detectors? Explain.
- b) What is optical networking technology? Explain shortly.
- c) Explain PIN photodiode with diagram.
- d) Explain optical Ethernet.
- e) What is optical network mode? Explain.

Q.5 Solve any two **12**

- a) Explain optical Transmitter Design in details.
- b) Explain Fiber distributed data Interface in details.
- c) What is optical detection principle? Explain in details.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In an optical network, which topologies are used?
 - a) Ring
 - b) Star
 - c) Bus
 - d) All of the above
- 2) Dense wavelength division multiplexing (DWDM) is a _____.
 - a) Wired communication technique
 - b) fiber-optic transmission technique
 - c) Mixing techniques
 - d) Protocol
- 3) A major consideration with all types of fiber, fiber connection is the _____.
 - a) optical loss encountered at the interface
 - b) air loss
 - c) hest loss
 - d) None of the above
- 4) Fiber splicing is the process of _____.
 - a) Temporary joining of two fibers
 - b) permanently joining two fibers together
 - c) permanent and temporary joint
 - d) None of the above
- 5) An optical amplifier is a device that amplifiers _____.
 - a) Electrical signal
 - b) an optical signal
 - c) Both a and b
 - d) None of the above
- 6) Wavelength division multiplexing (WDM) is a _____.
 - a) Technique of multiplexing multiple ray
 - b) Technique of multiplexing multiple optical carrier signals
 - c) Both a) and b)
 - d) None of the above

- 7) Optical modulators are widely used with superior performance _____.
a) Only Laboratory
b) including optical communications, signal processing, and optical measurements
c) time Measurement
d) None of the above
- 8) A LASER Means _____.
a) Light amplification some emit radiation
b) Light amplification by stimulated emission of radiation
c) Both a & b
d) Light activated stimulated emission of radiation
- 9) Optical fiber is the technology associated with data transmission using _____.
a) Air
b) Light pulses
c) Waves
d) Both a & c
- 10) Optical fiber is used by telecommunications companies to transmit _____.
a) Telephone signals
b) Telephone signals, Internet communication and cable television signals
c) Internet communication and cable television signals
d) None of the above
- 11) How do you measure bending losses in optical fiber?
a) By taking the logarithmic ratio of input power (P_i) to the output power (P_o)
b) By taking the logarithmic of Output power (P_o)
c) By taking the logarithmic of Input power (P_i)
d) Only Power
- 12) DWDM Means _____.
a) Data wavelength-division multiplexing
b) Dense wavelength-division multiplexing
c) Dense wavelength-diverted multiplexing
d) Dense wavelength-division manager
- 13) A light-emitting diode (LED) is a semiconductor device that emit light when _____.
a) Output reaches saturation level
b) Current flows through it
c) Output will be a sine waveform
d) Output will be a non-sinusoidal waveform
- 14) Fiber optic Ethernet transmits data signals over _____.
a) Fiber cables rather than the copper cables of traditional Ethernet wiring
b) Copper cables
c) Wired Cable
d) All of the mentioned

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) Draw the block diagram of generalized optical fiber communication system. Explain.
- b) Write any 4 advantages & disadvantages of optical Fiber communication.
- c) What is scattering losses? Enlist its types. Explain any one in details.
- d) Explain optical emission in semiconductor.
- e) What is light modulation? Explain Shortly.

Q.3 Solve any two **12**

- a) Explain the process of light amplification in a LASER.
- b) Explain optical fiber waveguides.
- c) Explain LED structure.

Section – II

Q.4 Solve any four **16**

- a) What is the requirement of optical detectors? Explain.
- b) What is optical networking technology? Explain shortly.
- c) Explain PIN photodiode with diagram.
- d) Explain optical Ethernet.
- e) What is optical network mode? Explain.

Q.5 Solve any two **12**

- a) Explain optical Transmitter Design in details.
- b) Explain Fiber distributed data Interface in details.
- c) What is optical detection principle? Explain in details.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Fiber splicing is the process of _____.
 - a) Temporary joining of two fibers
 - b) permanently joining two fibers together
 - c) permanent and temporary joint
 - d) None of the above

- 2) An optical amplifier is a device that amplifiers _____.
 - a) Electrical signal
 - b) an optical signal
 - c) Both a and b
 - d) None of the above

- 3) Wavelength division multiplexing (WDM) is a _____.
 - a) Technique of multiplexing multiple ray
 - b) Technique of multiplexing multiple optical carrier signals
 - c) Both a) and b)
 - d) None of the above

- 4) Optical modulators are widely used with superior performance _____.
 - a) Only Laboratory
 - b) including optical communications, signal processing, and optical measurements
 - c) time Measurement
 - d) None of the above

- 5) A LASER Means _____.
 - a) Light amplification some emit radiation
 - b) Light amplification by stimulated emission of radiation
 - c) Both a & b
 - d) Light activated stimulated emission of radiation

- 6) Optical fiber is the technology associated with data transmission using _____.
 - a) Air
 - b) Light pulses
 - c) Waves
 - d) Both a & c

- 7) Optical fiber is used by telecommunications companies to transmit _____.
a) Telephone signals
b) Telephone signals, Internet communication and cable television signals
c) Internet communication and cable television signals
d) None of the above
- 8) How do you measure bending losses in optical fiber?
a) By taking the logarithmic ratio of input power (P_i) to the output power (P_o)
b) By taking the logarithmic of Output power (P_o)
c) By taking the logarithmic of Input power (P_i)
d) Only Power
- 9) DWDM Means _____.
a) Data wavelength-division multiplexing
b) Dense wavelength-division multiplexing
c) Dense wavelength-diverted multiplexing
d) Dense wavelength-division manager
- 10) A light-emitting diode (LED) is a semiconductor device that emit light when _____.
a) Output reaches saturation level
b) Current flows through it
c) Output will be a sine waveform
d) Output will be a non-sinusoidal waveform
- 11) Fiber optic Ethernet transmits data signals over _____.
a) Fiber cables rather than the copper cables of traditional Ethernet wiring
b) Copper cables
c) Wired Cable
d) All of the mentioned
- 12) In an optical network, which topologies are used?
a) Ring
b) Star
c) Bus
d) All of the above
- 13) Dense wavelength division multiplexing (DWDM) is a _____.
a) Wired communication technique
b) fiber-optic transmission technique
c) Mixing techniques
d) Protocol
- 14) A major consideration with all types of fiber, fiber connection is the _____.
a) optical loss encountered at the interface
b) air loss
c) hest loss
d) None of the above

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) Draw the block diagram of generalized optical fiber communication system. Explain.
- b) Write any 4 advantages & disadvantages of optical Fiber communication.
- c) What is scattering losses? Enlist its types. Explain any one in details.
- d) Explain optical emission in semiconductor.
- e) What is light modulation? Explain Shortly.

Q.3 Solve any two **12**

- a) Explain the process of light amplification in a LASER.
- b) Explain optical fiber waveguides.
- c) Explain LED structure.

Section – II

Q.4 Solve any four **16**

- a) What is the requirement of optical detectors? Explain.
- b) What is optical networking technology? Explain shortly.
- c) Explain PIN photodiode with diagram.
- d) Explain optical Ethernet.
- e) What is optical network mode? Explain.

Q.5 Solve any two **12**

- a) Explain optical Transmitter Design in details.
- b) Explain Fiber distributed data Interface in details.
- c) What is optical detection principle? Explain in details.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A light-emitting diode (LED) is a semiconductor device that emit light when _____.
 - a) Output reaches saturation level
 - b) Current flows through it
 - c) Output will be a sine waveform
 - d) Output will be a non-sinusoidal waveform
- 2) Fiber optic Ethernet transmits data signals over _____.
 - a) Fiber cables rather than the copper cables of traditional Ethernet wiring
 - b) Copper cables
 - c) Wired Cable
 - d) All of the mentioned
- 3) In an optical network, which topologies are used?
 - a) Ring
 - b) Star
 - c) Bus
 - d) All of the above
- 4) Dense wavelength division multiplexing (DWDM) is a _____.
 - a) Wired communication technique
 - b) fiber-optic transmission technique
 - c) Mixing techniques
 - d) Protocol
- 5) A major consideration with all types of fiber, fiber connection is the _____.
 - a) optical loss encountered at the interface
 - b) air loss
 - c) hest loss
 - d) None of the above
- 6) Fiber splicing is the process of _____.
 - a) Temporary joining of two fibers
 - b) permanently joining two fibers together
 - c) permanent and temporary joint
 - d) None of the above

Seat No.	
-----------------	--

Set S

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Fiber Optic Communication (BTN07608)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four **16**

- a) Draw the block diagram of generalized optical fiber communication system. Explain.
- b) Write any 4 advantages & disadvantages of optical Fiber communication.
- c) What is scattering losses? Enlist its types. Explain any one in details.
- d) Explain optical emission in semiconductor.
- e) What is light modulation? Explain Shortly.

Q.3 Solve any two **12**

- a) Explain the process of light amplification in a LASER.
- b) Explain optical fiber waveguides.
- c) Explain LED structure.

Section – II

Q.4 Solve any four **16**

- a) What is the requirement of optical detectors? Explain.
- b) What is optical networking technology? Explain shortly.
- c) Explain PIN photodiode with diagram.
- d) Explain optical Ethernet.
- e) What is optical network mode? Explain.

Q.5 Solve any two **12**

- a) Explain optical Transmitter Design in details.
- b) Explain Fiber distributed data Interface in details.
- c) What is optical detection principle? Explain in details.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Dead zone of an instrument is _____.
 - a) The largest change of input quantity for which there is no output of the instrument
 - b) The time required by an instrument to begin to respond to a change in measurand
 - c) The unmeasured quantity which exceeds the maximum range of the instrument
 - d) The time required by an instrument to warm up initial
- 2) The sensors are classified on the basis of _____.
 - a) Functions
 - b) Performance
 - c) Output
 - d) All of the above
- 3) Hall Effect transducer can be used to measure _____.
 - a) Magnetic field
 - b) Angular displacement
 - c) Linear displacement
 - d) All of the mentioned
- 4) Piezoelectric effect is when materials produce electric charges when _____.
 - a) Voltage is applied
 - b) Mechanical Stress is applied
 - c) Electric field is applied
 - d) Magnetic field is applied
- 5) The more correct a sensor can measure, the more _____ it is.
 - a) Accurate
 - b) Precise
 - c) Scaled
 - d) Extent
- 6) What is signal conditioning?
 - a) To analyse any signal
 - b) Conversion or modification is referred to as conditioning
 - c) Conversion from analog to digital is signal conditioning
 - d) Conversion from digital to analog is signal conditioning
- 7) Which of the following method is employed for ADC?
 - a) Ladder network
 - b) Successive approximation type
 - c) PWM type
 - d) None of the mentioned

- 8) Potentiometer as a displacement sensor works on the principle of _____.
a) Mutual Inductance
b) Self-Inductance
c) Variable Resistance Transduction
d) Hall Effect
- 9) Which type of position can be determined by a position sensor?
a) Mechanical position
b) Lateral position
c) Prone position
d) Lithotomy position
- 10) In wet etching material is removed by _____.
a) Absorption
b) Sublimation
c) Chemical reaction
d) The force exerted due to flow of solvent
- 11) The process of modifying a metal's properties is called _____.
a) Electrolysis
b) Electro deposition
c) Electro less plating
d) Electroplating
- 12) The force developed in hydraulic systems is high due to _____.
a) High pressure
b) More oil
c) Less pressure
d) Less oil
- 13) Which type of coil is a solenoid?
a) Electromagnetic
b) Electrical
c) Mechanical
d) Chemical
- 14) The direction control valve controls _____.
a) Direction of flow
b) Rate of flow
c) Moisture
d) Force and motion

Seat No.	
-----------------	--

Set P

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Define and explain the sensor with one example.
- Explain the principle of working of Hall effect sensor.
- State and explain the different types of batteries for low power sensors.
- Explain with neat sketch thermal expansion property of material
- What is a voltage follower? Give a practical use of a voltage follower.

Q.3 Solve any two. 12

- Define the temperature and explain the thermal properties of material
- State Characteristics of sensor and explain the transfer function characteristics.
- State different types of excitation circuits and explain any one of them in details.

Section – II

Q.4 Solve any four. 16

- State the different types of pressure sensor and explain any one of them.
- State the sensors used for occupancy and motion detector application and explain any one of them
- With neat sketch explain vacuum deposition method of surface processing.
- Explain the wet etching MEMS Technology.
- Write the Selection criteria of Actuators.

Q.5 Solve any two. 12

- State the different types of light detector and explain any one of them.
- State the different types of material used for fabrication of sensor and explain any one of them.
- State and explain the principle of operation of micro and nano actuator with advantages and disadvantages.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Potentiometer as a displacement sensor works on the principle of _____.
 - a) Mutual Inductance
 - b) Self-Inductance
 - c) Variable Resistance Transduction
 - d) Hall Effect
- 2) Which type of position can be determined by a position sensor?
 - a) Mechanical position
 - b) Lateral position
 - c) Prone position
 - d) Lithotomy position
- 3) In wet etching material is removed by _____.
 - a) Absorption
 - b) Sublimation
 - c) Chemical reaction
 - d) The force exerted due to flow of solvent
- 4) The process of modifying a metal's properties is called _____.
 - a) Electrolysis
 - b) Electro deposition
 - c) Electro less plating
 - d) Electroplating
- 5) The force developed in hydraulic systems is high due to _____.
 - a) High pressure
 - b) More oil
 - c) Less pressure
 - d) Less oil
- 6) Which type of coil is a solenoid?
 - a) Electromagnetic
 - b) Electrical
 - c) Mechanical
 - d) Chemical
- 7) The direction control valve controls _____.
 - a) Direction of flow
 - b) Rate of flow
 - c) Moisture
 - d) Force and motion

- 8) Dead zone of an instrument is _____.
a) The largest change of input quantity for which there is no output of the instrument
b) The time required by an instrument to begin to respond to a change in measurand
c) The unmeasured quantity which exceeds the maximum range of the instrument
d) The time required by an instrument to warm up initial
- 9) The sensors are classified on the basis of _____.
a) Functions
b) Performance
c) Output
d) All of the above
- 10) Hall Effect transducer can be used to measure _____.
a) Magnetic field
b) Angular displacement
c) Linear displacement
d) All of the mentioned
- 11) Piezoelectric effect is when materials produce electric charges when _____.
a) Voltage is applied
b) Mechanical Stress is applied
c) Electric field is applied
d) Magnetic field is applied
- 12) The more correct a sensor can measure, the more _____ it is.
a) Accurate
b) Precise
c) Scaled
d) Extent
- 13) What is signal conditioning?
a) To analyse any signal
b) Conversion or modification is referred to as conditioning
c) Conversion from analog to digital is signal conditioning
d) Conversion from digital to analog is signal conditioning
- 14) Which of the following method is employed for ADC?
a) Ladder network
b) Successive approximation type
c) PWM type
d) None of the mentioned

Seat No.	
-----------------	--

Set Q

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Define and explain the sensor with one example.
- Explain the principle of working of Hall effect sensor.
- State and explain the different types of batteries for low power sensors.
- Explain with neat sketch thermal expansion property of material
- What is a voltage follower? Give a practical use of a voltage follower.

Q.3 Solve any two. 12

- Define the temperature and explain the thermal properties of material
- State Characteristics of sensor and explain the transfer function characteristics.
- State different types of excitation circuits and explain any one of them in details.

Section – II

Q.4 Solve any four. 16

- State the different types of pressure sensor and explain any one of them.
- State the sensors used for occupancy and motion detector application and explain any one of them
- With neat sketch explain vacuum deposition method of surface processing.
- Explain the wet etching MEMS Technology.
- Write the Selection criteria of Actuators.

Q.5 Solve any two. 12

- State the different types of light detector and explain any one of them.
- State the different types of material used for fabrication of sensor and explain any one of them.
- State and explain the principle of operation of micro and nano actuator with advantages and disadvantages.

Seat No.	
-----------------	--

Set R

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Define and explain the sensor with one example.
- Explain the principle of working of Hall effect sensor.
- State and explain the different types of batteries for low power sensors.
- Explain with neat sketch thermal expansion property of material
- What is a voltage follower? Give a practical use of a voltage follower.

Q.3 Solve any two. 12

- Define the temperature and explain the thermal properties of material
- State Characteristics of sensor and explain the transfer function characteristics.
- State different types of excitation circuits and explain any one of them in details.

Section – II

Q.4 Solve any four. 16

- State the different types of pressure sensor and explain any one of them.
- State the sensors used for occupancy and motion detector application and explain any one of them
- With neat sketch explain vacuum deposition method of surface processing.
- Explain the wet etching MEMS Technology.
- Write the Selection criteria of Actuators.

Q.5 Solve any two. 12

- State the different types of light detector and explain any one of them.
- State the different types of material used for fabrication of sensor and explain any one of them.
- State and explain the principle of operation of micro and nano actuator with advantages and disadvantages.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is signal conditioning?
 - a) To analyse any signal
 - b) Conversion or modification is referred to as conditioning
 - c) Conversion from analog to digital is signal conditioning
 - d) Conversion from digital to analog is signal conditioning
- 2) Which of the following method is employed for ADC?
 - a) Ladder network
 - b) Successive approximation type
 - c) PWM type
 - d) None of the mentioned
- 3) Potentiometer as a displacement sensor works on the principle of _____.
 - a) Mutual Inductance
 - b) Self-Inductance
 - c) Variable Resistance Transduction
 - d) Hall Effect
- 4) Which type of position can be determined by a position sensor?

a) Mechanical position	b) Lateral position
c) Prone position	d) Lithotomy position
- 5) In wet etching material is removed by _____.
 - a) Absorption
 - b) Sublimation
 - c) Chemical reaction
 - d) The force exerted due to flow of solvent
- 6) The process of modifying a metal's properties is called _____.

a) Electrolysis	b) Electro deposition
c) Electro less plating	d) Electroplating
- 7) The force developed in hydraulic systems is high due to _____.

a) High pressure	b) More oil
c) Less pressure	d) Less oil

- 8) Which type of coil is a solenoid?
a) Electromagnetic b) Electrical
c) Mechanical d) Chemical
- 9) The direction control valve controls _____.
a) Direction of flow b) Rate of flow
c) Moisture d) Force and motion
- 10) Dead zone of an instrument is _____.
a) The largest change of input quantity for which there is no output of the instrument
b) The time required by an instrument to begin to respond to a change in measurand
c) The unmeasured quantity which exceeds the maximum range of the instrument
d) The time required by an instrument to warm up initial
- 11) The sensors are classified on the basis of _____.
a) Functions b) Performance
c) Output d) All of the above
- 12) Hall Effect transducer can be used to measure _____.
a) Magnetic field b) Angular displacement
c) Linear displacement d) All of the mentioned
- 13) Piezoelectric effect is when materials produce electric charges when _____.
a) Voltage is applied b) Mechanical Stress is applied
c) Electric field is applied d) Magnetic field is applied
- 14) The more correct a sensor can measure, the more _____ it is.
a) Accurate b) Precise
c) Scaled d) Extent

Seat No.	
-----------------	--

Set S

T.Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Sensors & Applications (BTN07609)

Day & Date: Friday, 31-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four. 16

- Define and explain the sensor with one example.
- Explain the principle of working of Hall effect sensor.
- State and explain the different types of batteries for low power sensors.
- Explain with neat sketch thermal expansion property of material
- What is a voltage follower? Give a practical use of a voltage follower.

Q.3 Solve any two. 12

- Define the temperature and explain the thermal properties of material
- State Characteristics of sensor and explain the transfer function characteristics.
- State different types of excitation circuits and explain any one of them in details.

Section – II

Q.4 Solve any four. 16

- State the different types of pressure sensor and explain any one of them.
- State the sensors used for occupancy and motion detector application and explain any one of them
- With neat sketch explain vacuum deposition method of surface processing.
- Explain the wet etching MEMS Technology.
- Write the Selection criteria of Actuators.

Q.5 Solve any two. 12

- State the different types of light detector and explain any one of them.
- State the different types of material used for fabrication of sensor and explain any one of them.
- State and explain the principle of operation of micro and nano actuator with advantages and disadvantages.

Seat No.	
----------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING

Hybrid Electric Vehicle Design (BTN07610)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) The benefits of hybrid electric vehicle is/are, _____.
 - a) reducing emissions
 - b) improving gas mileage
 - c) high fuel consumption
 - d) a & b only
- 2) _____ are the engine that generates power by burning air and fuel (petrol, diesel, kerosene, etc.) in a closed chamber.
 - a) Internal Combustion engines
 - b) hybrid electric vehicle
 - c) Plug-in- hybrid electric vehicle
 - d) All of the above
- 3) The capacity of a battery is expressed in terms of _____.
 - a) Current rating
 - b) Voltage rating
 - c) Ampere hour rating
 - d) None of the above
- 4) Super capacitors are also known as _____.
 - a) Ultracapacitors
 - b) Fuel Cells
 - c) Battery
 - d) Flywheel
- 5) Which of the following converts energy from the combustion of fuel directly to the electrical energy?
 - a) Ni-Cd cell
 - b) Dynamo
 - c) Fuel cell
 - d) Electrolytic cell
- 6) The force required to stop a vehicle is dependent on _____.
 - a) the weight of vehicle
 - b) the deceleration rate
 - c) both (A) and (B)
 - d) None of the above
- 7) The uncontrolled skidding of vehicles while sudden brakes are applied is avoided through _____.
 - a) antilock brake system
 - b) Regenerative brake system
 - c) electric brake system
 - d) None of the above

- 8) Which of the following control scheme/s available for the induction motor drives?
- a) Scalar control
 - b) Vector control
 - c) Direct torque control
 - d) All of the above
- 9) Regenerative braking involves _____.
- a) nanofibers that repairs the surface of the brake pads
 - b) reducing the amount of friction necessary to slow the car
 - c) reclaiming heat from the brakes and using it for power
 - d) None of the above
- 10) Which strategy is not used in Energy management strategy system?
- a) Optimization based
 - b) Rule based
 - c) Global optimization strategy
 - d) Regression method

Seat No.	
-----------------	--

Set P**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024****ELECTRICAL ENGINEERING****Hybrid Electric Vehicle Design (BTN07610)**

Day & Date: Monday, 03-06-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Answer any five questions from the following questions.
2) Figures to the right indicates full marks.

Q.2 Attempt any five.**40**

- a) Explain in detail social and environmental importance of using Hybrid Electric Vehicle (HEV).
- b) Explain the Configuration and control of Induction Motor drives.
- c) Explain Super Capacitor and Flywheel based energy storage and its analysis in case of Hybrid Electric Vehicle (HEV).
- d) State different Brake System of Hybrid Electric Vehicle (HEV), write a short note on it.
- e) What are the different types of motors used in Hybrid Electric Vehicle (HEV), also explain the selection of size of such motors.
- f) Compare different energy management strategies used in hybrid electric vehicles.

Seat No.	
-------------	--

Set **Q**

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Hybrid Electric Vehicle Design (BTN07610)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) The force required to stop a vehicle is dependent on _____.
 a) the weight of vehicle b) the deceleration rate
 c) both (A) and (B) d) None of the above
- 2) The uncontrolled skidding of vehicles while sudden brakes are applied is avoided through _____.
 a) antilock brake system b) Regenerative brake system
 c) electric brake system d) None of the above
- 3) Which of the following control scheme/s available for the induction motor drives?
 a) Scalar control b) Vector control
 c) Direct torque control d) All of the above
- 4) Regenerative braking involves _____.
 a) nanofibers that repairs the surface of the brake pads
 b) reducing the amount of friction necessary to slow the car
 c) reclaiming heat from the brakes and using it for power
 d) None of the above
- 5) Which strategy is not used in Energy management strategy system?
 a) Optimization based
 b) Rule based
 c) Global optimization strategy
 d) Regression method
- 6) The benefits of hybrid electric vehicle is/are, _____.
 a) reducing emissions b) improving gas mileage
 c) high fuel consumption d) a & b only
- 7) _____ are the engine that generates power by burning air and fuel (petrol, diesel, kerosene, etc.) in a closed chamber.
 a) Internal Combustion engines b) hybrid electric vehicle
 c) Plug-in- hybrid electric vehicle d) All of the above
- 8) The capacity of a battery is expressed in terms of _____.
 a) Current rating b) Voltage rating
 c) Ampere hour rating d) None of the above

- 9) Super capacitors are also known as _____.
- | | |
|--------------------|---------------|
| a) Ultracapacitors | b) Fuel Cells |
| c) Battery | d) Flywheel |
- 10) Which of the following converts energy from the combustion of fuel directly to the electrical energy?
- | | |
|---------------|----------------------|
| a) Ni-Cd cell | b) Dynamo |
| c) Fuel cell | d) Electrolytic cell |

Seat No.	
-----------------	--

Set Q**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024****ELECTRICAL ENGINEERING****Hybrid Electric Vehicle Design (BTN07610)**

Day & Date: Monday, 03-06-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Answer any five questions from the following questions.
2) Figures to the right indicates full marks.

Q.2 Attempt any five.**40**

- a) Explain in detail social and environmental importance of using Hybrid Electric Vehicle (HEV).
- b) Explain the Configuration and control of Induction Motor drives.
- c) Explain Super Capacitor and Flywheel based energy storage and its analysis in case of Hybrid Electric Vehicle (HEV).
- d) State different Brake System of Hybrid Electric Vehicle (HEV), write a short note on it.
- e) What are the different types of motors used in Hybrid Electric Vehicle (HEV), also explain the selection of size of such motors.
- f) Compare different energy management strategies used in hybrid electric vehicles.

Seat No.	
-------------	--

T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Hybrid Electric Vehicle Design (BTN07610)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct option from the following. 10

- 1) Regenerative braking involves _____.
 - a) nanofibers that repairs the surface of the brake pads
 - b) reducing the amount of friction necessary to slow the car
 - c) reclaiming heat from the brakes and using it for power
 - d) None of the above
- 2) Which strategy is not used in Energy management strategy system?
 - a) Optimization based
 - b) Rule based
 - c) Global optimization strategy
 - d) Regression method
- 3) The benefits of hybrid electric vehicle is/are, _____.

a) reducing emissions	b) improving gas mileage
c) high fuel consumption	d) a & b only
- 4) _____ are the engine that generates power by burning air and fuel (petrol, diesel, kerosene, etc.) in a closed chamber.

a) Internal Combustion engines	b) hybrid electric vehicle
c) Plug-in- hybrid electric vehicle	d) All of the above
- 5) The capacity of a battery is expressed in terms of _____.

a) Current rating	b) Voltage rating
c) Ampere hour rating	d) None of the above
- 6) Super capacitors are also known as _____.

a) Ultracapacitors	b) Fuel Cells
c) Battery	d) Flywheel
- 7) Which of the following converts energy from the combustion of fuel directly to the electrical energy?

a) Ni-Cd cell	b) Dynamo
c) Fuel cell	d) Electrolytic cell
- 8) The force required to stop a vehicle is dependent on _____.

a) the weight of vehicle	b) the deceleration rate
c) both (A) and (B)	d) None of the above

- 9)** The uncontrolled skidding of vehicles while sudden brakes are applied is avoided through _____.
- | | |
|--------------------------|------------------------------|
| a) antilock brake system | b) Regenerative brake system |
| c) electric brake system | d) None of the above |
- 10)** Which of the following control scheme/s available for the induction motor drives?
- | | |
|--------------------------|---------------------|
| a) Scalar control | b) Vector control |
| c) Direct torque control | d) All of the above |

Seat No.	
-----------------	--

Set R**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024****ELECTRICAL ENGINEERING****Hybrid Electric Vehicle Design (BTN07610)**

Day & Date: Monday, 03-06-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Answer any five questions from the following questions.
2) Figures to the right indicates full marks.

Q.2 Attempt any five.**40**

- a) Explain in detail social and environmental importance of using Hybrid Electric Vehicle (HEV).
- b) Explain the Configuration and control of Induction Motor drives.
- c) Explain Super Capacitor and Flywheel based energy storage and its analysis in case of Hybrid Electric Vehicle (HEV).
- d) State different Brake System of Hybrid Electric Vehicle (HEV), write a short note on it.
- e) What are the different types of motors used in Hybrid Electric Vehicle (HEV), also explain the selection of size of such motors.
- f) Compare different energy management strategies used in hybrid electric vehicles.

- 9) The benefits of hybrid electric vehicle is/are, _____
- a) reducing emissions b) improving gas mileage
c) high fuel consumption d) a & b only
- 10) _____ are the engine that generates power by burning air and fuel (petrol, diesel, kerosene, etc.) in a closed chamber.
- a) Internal Combustion engines b) hybrid electric vehicle
c) Plug-in- hybrid electric vehicle d) All of the above

Seat No.	
-----------------	--

Set S**T.Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April - 2024****ELECTRICAL ENGINEERING****Hybrid Electric Vehicle Design (BTN07610)**

Day & Date: Monday, 03-06-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Answer any five questions from the following questions.
2) Figures to the right indicates full marks.

Q.2 Attempt any five.**40**

- a) Explain in detail social and environmental importance of using Hybrid Electric Vehicle (HEV).
- b) Explain the Configuration and control of Induction Motor drives.
- c) Explain Super Capacitor and Flywheel based energy storage and its analysis in case of Hybrid Electric Vehicle (HEV).
- d) State different Brake System of Hybrid Electric Vehicle (HEV), write a short note on it.
- e) What are the different types of motors used in Hybrid Electric Vehicle (HEV), also explain the selection of size of such motors.
- f) Compare different energy management strategies used in hybrid electric vehicles.

- 8) What are the followings will define Secondary electric Shock?
- a) the low magnitude of the current
 - b) hair raising & tickling sensation
 - c) involuntary muscle reaction
 - d) All of these
- 9) _____ all electrical equipment before use.
- a) Inspect
 - b) Clean
 - c) Label
 - d) Organize
- 10) Current flow from hand to hand is called _____.
- a) Amperage
 - b) Step potential
 - c) Touch potential
 - d) None of these

Seat No.	
-----------------	--

Set P

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Answer the FOUR question: -

40

- a) Explain the procedure of permit to do the work on electrical equipment & give objectives of safety management.
- b) Explain the effect of electrical shock on human body & comment on safety clearances and creepages in electrical installation.
- c) What is electrical shock? Distinguish between primary shock and secondary shock.
- d) Explain the Cause of different type of electric fires. Comment on electrical installations regarding to fire.
- e) Explain the types of extinguishers used. & also write the methods of artificial respirations.

Seat No.	
-------------	--

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options **10**

- 1) Who will ensure that you are using proper PPE (Personal Protective Equipment)?
 - a) You
 - b) Your Co-Worker
 - c) Your Safety Management
 - d) Company Owner
- 2) The minimum distance provided between two conducting points by air/gas/oil is Known as _____.
 - a) Clearances
 - b) Creepages
 - c) Clearances and Creepages
 - d) All of these
- 3) What are the followings will define Secondary electric Shock?
 - a) the low magnitude of the current
 - b) hair raising & tickling sensation
 - c) involuntary muscle reaction
 - d) All of these
- 4) _____ all electrical equipment before use.
 - a) Inspect
 - b) Clean
 - c) Label
 - d) Organize
- 5) Current flow from hand to hand is called _____.
 - a) Amperage
 - b) Step potential
 - c) Touch potential
 - d) None of these
- 6) Class-A fire consists of fire due to _____.
 - a) Wood
 - b) Oil
 - c) Transformer
 - d) Chemical
- 7) The following class of fire occur in electrical equipment _____.
 - a) Class-A fires
 - b) Class-B fires
 - c) Class-C fires
 - d) All of the above
- 8) _____ distance is the shortest distance between two metallic parts along with the surface of the solid insulator.
 - a) Clearances
 - b) Creepage
 - c) Clearances and Creepages
 - d) Safety

- 9)** Which of the following is/are influenced by the Creepage distance?
- a) surface leakage currents & flashover
 - b) Voltage Level
 - c) degree of atmosphere pollution
 - d) All of these
- 10)** The severity of electric shock is/are depends on _____.
- a) Magnitude (mA) & Rate of rise (mA/mS) of the current flowing through the body
 - b) Path of current through the body
 - c) Time duration of current flow through the body
 - d) All of these

Seat No.	
-----------------	--

Set Q

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Answer the FOUR question: -

40

- a) Explain the procedure of permit to do the work on electrical equipment & give objectives of safety management.
- b) Explain the effect of electrical shock on human body & comment on safety clearances and creepages in electrical installation.
- c) What is electrical shock? Distinguish between primary shock and secondary shock.
- d) Explain the Cause of different type of electric fires. Comment on electrical installations regarding to fire.
- e) Explain the types of extinguishers used. & also write the methods of artificial respirations.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options **10**

- 1) _____ all electrical equipment before use.
 - a) Inspect
 - b) Clean
 - c) Label
 - d) Organize
- 2) Current flow from hand to hand is called _____.
 - a) Amperage
 - b) Step potential
 - c) Touch potential
 - d) None of these
- 3) Class-A fire consists of fire due to _____.
 - a) Wood
 - b) Oil
 - c) Transformer
 - d) Chemical
- 4) The following class of fire occur in electrical equipment _____.
 - a) Class-A fires
 - b) Class-B fires
 - c) Class-C fires
 - d) All of the above
- 5) _____ distance is the shortest distance between two metallic parts along with the surface of the solid insulator.
 - a) Clearances
 - b) Creepage
 - c) Clearances and Creepages
 - d) Safety
- 6) Which of the following is/are influenced by the Creepage distance?
 - a) surface leakage currents & flashover
 - b) Voltage Level
 - c) degree of atmosphere pollution
 - d) All of these
- 7) The severity of electric shock is/are depends on _____.
 - a) Magnitude (mA) & Rate of rise (mA/mS) of the current flowing through the body
 - b) Path of current through the body
 - c) Time duration of current flow through the body
 - d) All of these
- 8) Who will ensure that you are using proper PPE (Personal Protective Equipment)?
 - a) You
 - b) Your Co-Worker
 - c) Your Safety Management
 - d) Company Owner

- 9) The minimum distance provided between two conducting points by air/gas/oil is Known as _____.
- a) Clearances
 - b) Creepages
 - c) Clearances and Creepages
 - d) All of these
- 10) What are the followings will define Secondary electric Shock?
- a) the low magnitude of the current
 - b) hair raising & tickling sensation
 - c) involuntary muscle reaction
 - d) All of these

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Answer the FOUR question: -

40

- a) Explain the procedure of permit to do the work on electrical equipment & give objectives of safety management.
- b) Explain the effect of electrical shock on human body & comment on safety clearances and creepages in electrical installation.
- c) What is electrical shock? Distinguish between primary shock and secondary shock.
- d) Explain the Cause of different type of electric fires. Comment on electrical installations regarding to fire.
- e) Explain the types of extinguishers used. & also write the methods of artificial respirations.

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the options **10**

- 1) _____ distance is the shortest distance between two metallic parts along with the surface of the solid insulator.
 - a) Clearances
 - b) Creepage
 - c) Clearances and Creepages
 - d) Safety
- 2) Which of the following is/are influenced by the Creepage distance?
 - a) surface leakage currents & flashover
 - b) Voltage Level
 - c) degree of atmosphere pollution
 - d) All of these
- 3) The severity of electric shock is/are depends on _____.
 - a) Magnitude (mA) & Rate of rise (mA/mS) of the current flowing through the body
 - b) Path of current through the body
 - c) Time duration of current flow through the body
 - d) All of these
- 4) Who will ensure that you are using proper PPE (Personal Protective Equipment)?
 - a) You
 - b) Your Co-Worker
 - c) Your Safety Management
 - d) Company Owner
- 5) The minimum distance provided between two conducting points by air/gas/oil is Known as _____.
 - a) Clearances
 - b) Creepages
 - c) Clearances and Creepages
 - d) All of these
- 6) What are the followings will define Secondary electric Shock?
 - a) the low magnitude of the current
 - b) hair raising & tickling sensation
 - c) involuntary muscle reaction
 - d) All of these
- 7) _____ all electrical equipment before use.
 - a) Inspect
 - b) Clean
 - c) Label
 - d) Organize

Seat No.	
-----------------	--

Set S

T.Y. (B. Tech) (Sem– II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Electrical Safety (BTN07611)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Answer the FOUR question: -

40

- a) Explain the procedure of permit to do the work on electrical equipment & give objectives of safety management.
- b) Explain the effect of electrical shock on human body & comment on safety clearances and creepages in electrical installation.
- c) What is electrical shock? Distinguish between primary shock and secondary shock.
- d) Explain the Cause of different type of electric fires. Comment on electrical installations regarding to fire.
- e) Explain the types of extinguishers used. & also write the methods of artificial respirations.

Seat No.	
----------	--

Set **P**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING**

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Identify the adjacent module configuration.

a) Monocrystalline	b) Polycrystalline
c) Thin film	d) Any other
- 2) Identify the adjacent module configuration.

a) Monocrystalline	b) Polycrystalline
c) Thin film	d) Any other
- 3) Identify the adjacent module configuration.

a) Monocrystalline	b) Polycrystalline
c) Thin film	d) Any other
- 4) What is function of inverter?

a) Conversion of AC to DC	b) Conversion of DC to AC
c) Amplifying the sound	d) Step up the voltage
- 5) What is MPPT?

a) Maximum Photo Power Tracer	b) Maximum Power Point Tracer
c) Multi Point Power Tracer	d) None of the above
- 6) What is the smallest unit of solar photovoltaic system?

a) Solar Cell	b) Solar Array
c) Solar module	d) Solar panel
- 7) In P-N Junction solar cell, P-type semiconductor is connected to _____.

a) Cathode	b) Anode
c) Triode	d) Diode
- 8) In P-N Junction solar cell, N-type semiconductor is connected to _____.

a) Cathode	b) Anode
c) Triode	d) Diode
- 9) In P-type semiconductor are the majority carriers.

a) Holes	b) Electrons
c) Neutrons	d) All of the above

- 10)** In N-type semiconductor are the majority carriers.
- a) Holes
 - b) Electrons
 - c) Neutrons
 - d) All of the above

Seat No.	
-----------------	--

Set P

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any four of the following. 20

- a) Write the application of Solar PV Cell.
- b) Explain the VI Characteristics of PV cells.
- c) Classify the different types of batteries.
- d) What are the factors are involved in the preparation of installation of Solar Power plant?
- e) Explain the Basic Terminologies of a Inverter and Characteristics

Q.3 Solve any two of the following. 20

- a) Explain the basics of Charge controllers, operation and specifications with proper circuit diagram.
- b) Explain the Interconnection of modules installation.
- c) Explain the understanding of various costs (Project heads) involved in the solar projects

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
 Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options. 10

- 1) What is the smallest unit of solar photovoltaic system?

a) Solar Cell	b) Solar Array
c) Solar module	d) Solar panel
- 2) In P-N Junction solar cell, P-type semiconductor is connected to _____.

a) Cathode	b) Anode
c) Triode	d) Diode
- 3) In P-N Junction solar cell, N-type semiconductor is connected to _____.

a) Cathode	b) Anode
c) Triode	d) Diode
- 4) In P-type semiconductor are the majority carriers.

a) Holes	b) Electrons
c) Neutrons	d) All of the above
- 5) In N-type semiconductor are the majority carriers.

a) Holes	b) Electrons
c) Neutrons	d) All of the above
- 6) Identify the adjacent module configuration.

a) Monocrystalline	b) Polycrystalline
c) Thin film	d) Any other
- 7) Identify the adjacent module configuration.

a) Monocrystalline	b) Polycrystalline
c) Thin film	d) Any other
- 8) Identify the adjacent module configuration.

a) Monocrystalline	b) Polycrystalline
c) Thin film	d) Any other
- 9) What is function of inverter?

a) Conversion of AC to DC	b) Conversion of DC to AC
c) Amplifying the sound	d) Step up the voltage

- 10)** What is MPPT?
- a) Maximum Photo Power Tracer
 - b) Maximum Power Point Tracer
 - c) Multi Point Power Tracer
 - d) None of the above

Seat No.	
-----------------	--

Set Q

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING**

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any four of the following. 20

- a) Write the application of Solar PV Cell.
- b) Explain the VI Characteristics of PV cells.
- c) Classify the different types of batteries.
- d) What are the factors are involved in the preparation of installation of Solar Power plant?
- e) Explain the Basic Terminologies of a Inverter and Characteristics

Q.3 Solve any two of the following. 20

- a) Explain the basics of Charge controllers, operation and specifications with proper circuit diagram.
- b) Explain the Interconnection of modules installation.
- c) Explain the understanding of various costs (Project heads) involved in the solar projects

Seat No.	
-----------------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING**

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) In P-type semiconductor are the majority carriers.
 - a) Holes
 - b) Electrons
 - c) Neutrons
 - d) All of the above
- 2) In N-type semiconductor are the majority carriers.
 - a) Holes
 - b) Electrons
 - c) Neutrons
 - d) All of the above
- 3) Identify the adjacent module configuration.
 - a) Monocrystalline
 - b) Polycrystalline
 - c) Thin film
 - d) Any other
- 4) Identify the adjacent module configuration.
 - a) Monocrystalline
 - b) Polycrystalline
 - c) Thin film
 - d) Any other
- 5) Identify the adjacent module configuration.
 - a) Monocrystalline
 - b) Polycrystalline
 - c) Thin film
 - d) Any other
- 6) What is function of inverter?
 - a) Conversion of AC to DC
 - b) Conversion of DC to AC
 - c) Amplifying the sound
 - d) Step up the voltage
- 7) What is MPPT?
 - a) Maximum Photo Power Tracer
 - b) Maximum Power Point Tracer
 - c) Multi Point Power Tracer
 - d) None of the above
- 8) What is the smallest unit of solar photovoltaic system?
 - a) Solar Cell
 - b) Solar Array
 - c) Solar module
 - d) Solar panel
- 9) In P-N Junction solar cell, P-type semiconductor is connected to _____.
 - a) Cathode
 - b) Anode
 - c) Triode
 - d) Diode

- 10)** In P-N Junction solar cell, N-type semiconductor is connected to ____.
- a) Cathode
 - b) Anode
 - c) Triode
 - d) Diode

Seat No.	
-----------------	--

Set R

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any four of the following. 20

- a) Write the application of Solar PV Cell.
- b) Explain the VI Characteristics of PV cells.
- c) Classify the different types of batteries.
- d) What are the factors are involved in the preparation of installation of Solar Power plant?
- e) Explain the Basic Terminologies of a Inverter and Characteristics

Q.3 Solve any two of the following. 20

- a) Explain the basics of Charge controllers, operation and specifications with proper circuit diagram.
- b) Explain the Interconnection of modules installation.
- c) Explain the understanding of various costs (Project heads) involved in the solar projects

Seat No.	
-----------------	--

Set **S**

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING**

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks:10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Identify the adjacent module configuration.
 - a) Monocrystalline
 - b) Polycrystalline
 - c) Thin film
 - d) Any other
- 2) What is function of inverter?
 - a) Conversion of AC to DC
 - b) Conversion of DC to AC
 - c) Amplifying the sound
 - d) Step up the voltage
- 3) What is MPPT?
 - a) Maximum Photo Power Tracer
 - b) Maximum Power Point Tracer
 - c) Multi Point Power Tracer
 - d) None of the above
- 4) What is the smallest unit of solar photovoltaic system?
 - a) Solar Cell
 - b) Solar Array
 - c) Solar module
 - d) Solar panel
- 5) In P-N Junction solar cell, P-type semiconductor is connected to _____.
 - a) Cathode
 - b) Anode
 - c) Triode
 - d) Diode
- 6) In P-N Junction solar cell, N-type semiconductor is connected to _____.
 - a) Cathode
 - b) Anode
 - c) Triode
 - d) Diode
- 7) In P-type semiconductor are the majority carriers.
 - a) Holes
 - b) Electrons
 - c) Neutrons
 - d) All of the above
- 8) In N-type semiconductor are the majority carriers.
 - a) Holes
 - b) Electrons
 - c) Neutrons
 - d) All of the above
- 9) Identify the adjacent module configuration.
 - a) Monocrystalline
 - b) Polycrystalline
 - c) Thin film
 - d) Any other

- 10)** Identify the adjacent module configuration.
- | | |
|--------------------|--------------------|
| a) Monocrystalline | b) Polycrystalline |
| c) Thin film | d) Any other |

Seat No.	
-----------------	--

Set S

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING**

Solar Photovoltaic System Design & Installation (BTN07612)

Day & Date: Monday, 03-06-2024
Time: 10:00 AM To 12:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.2 Solve any four of the following. 20

- a) Write the application of Solar PV Cell.
- b) Explain the VI Characteristics of PV cells.
- c) Classify the different types of batteries.
- d) What are the factors are involved in the preparation of installation of Solar Power plant?
- e) Explain the Basic Terminologies of a Inverter and Characteristics

Q.3 Solve any two of the following. 20

- a) Explain the basics of Charge controllers, operation and specifications with proper circuit diagram.
- b) Explain the Interconnection of modules installation.
- c) Explain the understanding of various costs (Project heads) involved in the solar projects

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) On Which law secondary cell works?
 - a) Lenz's law
 - b) Joule's law
 - c) Faradays laws of electrolysis
 - d) Faradays laws of electromagnetic induction
- 2) Cells are connected in parallel to _____.
 - a) increase the voltage output
 - b) increases the internal resistance
 - c) decreases the current capacity
 - d) increases the current capacity
- 3) What is the value of the specific gravity of a fully charged battery?

a) 1	b) 1.29
c) 0.5	d) 1.1
- 4) The capacity of a battery is expressed in terms of _____.

a) Current rating	b) Voltage rating
c) Ampere hour rating	d) None of the above
- 5) Which is the active material present on the negative plate in a lead-acid battery?

a) Lead dioxide	b) Lead peroxide
c) Spongy lead	d) Water
- 6) What is the unit of specific energy in a battery?

a) Watt-hour-Kg	b) Watt-hour/Kg
c) Watt-hour	d) None of the above
- 7) The plot between specific power & specific energy is known as _____.

a) Bournville's Plot	b) Pascal plot
c) Ragone Plot	d) None of the above

- 8) Which of the following meter is used in the open volt test?
a) Ammeter
b) Voltmeter
c) Galvanometer
d) Hydrometer
- 9) Generally, the most common battery cells are used in 3 or 4-wheeler Electric vehicles _____.
a) Cylindrical
b) Pouch
c) Prismatic
d) Both b and c
- 10) The most common communication protocol used in BMS:
a) CAN bus
b) SPI bus
c) 12 C bus
d) None of the above
- 11) Which among the following is not a factor affecting the charging of the battery?
a) State of charge
b) Gassing
c) Temperature
d) Discolouring of electrolyte
- 12) Which component is not related to the active cell balancing method _____.
a) Capacitor
b) Inductor
c) Resistor
d) None of the above
- 13) Hall effect used in which sensor _____.
a) Voltage sensor
b) Temperature sensor
c) Current sensor
d) None of these
- 14) Which materials can be recovered during battery recycling?
a) Metals (such as lithium, cobalt, and nickel)
b) Plastics
c) Electrolytes
d) All of the above

Seat No.	
-----------------	--

Set P

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Explain operation of Metal Air battery also give its application.
- Explain Vehicle propulsion factors regarding performance criteria for Electric Vehicles batteries.
- Explain with chemical reactions charging process of a lead acid battery.
- Explain in detail hydraulic energy storage element.
- Explain with application operation of Zinc Chloride battery.
- Explain in short nominal parameters of a battery.

Q.3 Answer the following (Any Two) 12

- Explain operation with chemical reactions of Nickel-Iron and Nickel-Cadmium batteries during charging and discharging process.
- State and explain different types of batteries available in market.
- Explain general approach to modeling of batteries.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain in detail requirement of battery monitoring.
- Explain methods of recycling of EV batteries.
- Explain the fundamentals of the battery pack development process.
- Explain Chemical & structure material properties for cell safety and battery design.
- Write a short note on Battery Standards & Tests.
- Describes the EV Battery testing methods.

Q.5 Answer the following (Any Two) 12

- Explain in detail selection of batteries for Electric Vehicle (EV) and hybrid electric vehicle (HEV).
- Explain Environment and Human Health impact assessments of batteries.
- Why is Battery Management System (BMS) important in Lithium-ion battery, and describes the core functions of BMS?

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the following meter is used in the open volt test?
 - a) Ammeter
 - b) Voltmeter
 - c) Galvanometer
 - d) Hydrometer
- 2) Generally, the most common battery cells are used in 3 or 4-wheeler Electric vehicles _____.
 - a) Cylindrical
 - b) Pouch
 - c) Prismatic
 - d) Both b and c
- 3) The most common communication protocol used in BMS:
 - a) CAN bus
 - b) SPI bus
 - c) 12 C bus
 - d) None of the above
- 4) Which among the following is not a factor affecting the charging of the battery?
 - a) State of charge
 - b) Gassing
 - c) Temperature
 - d) Discolouring of electrolyte
- 5) Which component is not related to the active cell balancing method _____.
 - a) Capacitor
 - b) Inductor
 - c) Resistor
 - d) None of the above
- 6) Hall effect used in which sensor _____.
 - a) Voltage sensor
 - b) Temperature sensor
 - c) Current sensor
 - d) None of these
- 7) Which materials can be recovered during battery recycling?
 - a) Metals (such as lithium, cobalt, and nickel)
 - b) Plastics
 - c) Electrolytes
 - d) All of the above
- 8) On Which law secondary cell works?
 - a) Lenz's law
 - b) Joule's law
 - c) Faradays laws of electrolysis
 - d) Faradays laws of electromagnetic induction

- 9) Cells are connected in parallel to _____.
a) increase the voltage output
b) increases the internal resistance
c) decreases the current capacity
d) increases the current capacity
- 10) What is the value of the specific gravity of a fully charged battery?
a) 1
b) 1.29
c) 0.5
d) 1.1
- 11) The capacity of a battery is expressed in terms of _____.
a) Current rating
b) Voltage rating
c) Ampere hour rating
d) None of the above
- 12) Which is the active material present on the negative plate in a lead-acid battery?
a) Lead dioxide
b) Lead peroxide
c) Spongy lead
d) Water
- 13) What is the unit of specific energy in a battery?
a) Watt-hour-Kg
b) Watt-hour/Kg
c) Watt-hour
d) None of the above
- 14) The plot between specific power & specific energy is known as _____.
a) Bournville's Plot
b) Pascal plot
c) Ragone Plot
d) None of the above

Seat No.	
-----------------	--

Set Q

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Explain operation of Metal Air battery also give its application.
- Explain Vehicle propulsion factors regarding performance criteria for Electric Vehicles batteries.
- Explain with chemical reactions charging process of a lead acid battery.
- Explain in detail hydraulic energy storage element.
- Explain with application operation of Zinc Chloride battery.
- Explain in short nominal parameters of a battery.

Q.3 Answer the following (Any Two) 12

- Explain operation with chemical reactions of Nickel-Iron and Nickel-Cadmium batteries during charging and discharging process.
- State and explain different types of batteries available in market.
- Explain general approach to modeling of batteries.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain in detail requirement of battery monitoring.
- Explain methods of recycling of EV batteries.
- Explain the fundamentals of the battery pack development process.
- Explain Chemical & structure material properties for cell safety and battery design.
- Write a short note on Battery Standards & Tests.
- Describes the EV Battery testing methods.

Q.5 Answer the following (Any Two) 12

- Explain in detail selection of batteries for Electric Vehicle (EV) and hybrid electric vehicle (HEV).
- Explain Environment and Human Health impact assessments of batteries.
- Why is Battery Management System (BMS) important in Lithium-ion battery, and describes the core functions of BMS?

Seat No.	
----------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which among the following is not a factor affecting the charging of the battery?
 - a) State of charge
 - b) Gassing
 - c) Temperature
 - d) Discolouring of electrolyte
- 2) Which component is not related to the active cell balancing method _____.
 - a) Capacitor
 - b) Inductor
 - c) Resistor
 - d) None of the above
- 3) Hall effect used in which sensor _____.
 - a) Voltage sensor
 - b) Temperature sensor
 - c) Current sensor
 - d) None of these
- 4) Which materials can be recovered during battery recycling?
 - a) Metals (such as lithium, cobalt, and nickel)
 - b) Plastics
 - c) Electrolytes
 - d) All of the above
- 5) On Which law secondary cell works?
 - a) Lenz's law
 - b) Joule's law
 - c) Faradays laws of electrolysis
 - d) Faradays laws of electromagnetic induction
- 6) Cells are connected in parallel to _____.
 - a) increase the voltage output
 - b) increases the internal resistance
 - c) decreases the current capacity
 - d) increases the current capacity
- 7) What is the value of the specific gravity of a fully charged battery?
 - a) 1
 - b) 1.29
 - c) 0.5
 - d) 1.1
- 8) The capacity of a battery is expressed in terms of _____.
 - a) Current rating
 - b) Voltage rating
 - c) Ampere hour rating
 - d) None of the above

Seat No.	
-----------------	--

Set R

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Explain operation of Metal Air battery also give its application.
- Explain Vehicle propulsion factors regarding performance criteria for Electric Vehicles batteries.
- Explain with chemical reactions charging process of a lead acid battery.
- Explain in detail hydraulic energy storage element.
- Explain with application operation of Zinc Chloride battery.
- Explain in short nominal parameters of a battery.

Q.3 Answer the following (Any Two) 12

- Explain operation with chemical reactions of Nickel-Iron and Nickel-Cadmium batteries during charging and discharging process.
- State and explain different types of batteries available in market.
- Explain general approach to modeling of batteries.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain in detail requirement of battery monitoring.
- Explain methods of recycling of EV batteries.
- Explain the fundamentals of the battery pack development process.
- Explain Chemical & structure material properties for cell safety and battery design.
- Write a short note on Battery Standards & Tests.
- Describes the EV Battery testing methods.

Q.5 Answer the following (Any Two) 12

- Explain in detail selection of batteries for Electric Vehicle (EV) and hybrid electric vehicle (HEV).
- Explain Environment and Human Health impact assessments of batteries.
- Why is Battery Management System (BMS) important in Lithium-ion battery, and describes the core functions of BMS?

Seat No.	
----------	--

Set **S**

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the unit of specific energy in a battery?
 - a) Watt-hour-Kg
 - b) Watt-hour/Kg
 - c) Watt-hour
 - d) None of the above
- 2) The plot between specific power & specific energy is known as _____.
 - a) Bournville's Plot
 - b) Pascal plot
 - c) Ragone Plot
 - d) None of the above
- 3) Which of the following meter is used in the open volt test?
 - a) Ammeter
 - b) Voltmeter
 - c) Galvanometer
 - d) Hydrometer
- 4) Generally, the most common battery cells are used in 3 or 4-wheeler Electric vehicles _____.
 - a) Cylindrical
 - b) Pouch
 - c) Prismatic
 - d) Both b and c
- 5) The most common communication protocol used in BMS:
 - a) CAN bus
 - b) SPI bus
 - c) 12 C bus
 - d) None of the above
- 6) Which among the following is not a factor affecting the charging of the battery?
 - a) State of charge
 - b) Gassing
 - c) Temperature
 - d) Discolouring of electrolyte
- 7) Which component is not related to the active cell balancing method _____.
 - a) Capacitor
 - b) Inductor
 - c) Resistor
 - d) None of the above
- 8) Hall effect used in which sensor _____.
 - a) Voltage sensor
 - b) Temperature sensor
 - c) Current sensor
 - d) None of these

- 9) Which materials can be recovered during battery recycling?
- a) Metals (such as lithium, cobalt, and nickel)
 - b) Plastics
 - c) Electrolytes
 - d) All of the above
- 10) On Which law secondary cell works?
- a) Lenz's law
 - b) Joule's law
 - c) Faradays laws of electrolysis
 - d) Faradays laws of electromagnetic induction
- 11) Cells are connected in parallel to _____.
- a) increase the voltage output
 - b) increases the internal resistance
 - c) decreases the current capacity
 - d) increases the current capacity
- 12) What is the value of the specific gravity of a fully charged battery?
- a) 1
 - b) 1.29
 - c) 0.5
 - d) 1.1
- 13) The capacity of a battery is expressed in terms of _____.
- a) Current rating
 - b) Voltage rating
 - c) Ampere hour rating
 - d) None of the above
- 14) Which is the active material present on the negative plate in a lead-acid battery?
- a) Lead dioxide
 - b) Lead peroxide
 - c) Spongy lead
 - d) Water

Seat No.	
-----------------	--

**T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Energy Management System for Electric Vehicle (BTN07614)

Day & Date: Wednesday, 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer the following (Any Four) 16**
- a) Explain operation of Metal Air battery also give its application.
 - b) Explain Vehicle propulsion factors regarding performance criteria for Electric Vehicles batteries.
 - c) Explain with chemical reactions charging process of a lead acid battery.
 - d) Explain in detail hydraulic energy storage element.
 - e) Explain with application operation of Zinc Chloride battery.
 - f) Explain in short nominal parameters of a battery.
- Q.3 Answer the following (Any Two) 12**
- a) Explain operation with chemical reactions of Nickel-Iron and Nickel-Cadmium batteries during charging and discharging process.
 - b) State and explain different types of batteries available in market.
 - c) Explain general approach to modeling of batteries.

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) Explain in detail requirement of battery monitoring.
 - b) Explain methods of recycling of EV batteries.
 - c) Explain the fundamentals of the battery pack development process.
 - d) Explain Chemical & structure material properties for cell safety and battery design.
 - e) Write a short note on Battery Standards & Tests.
 - f) Describes the EV Battery testing methods.
- Q.5 Answer the following (Any Two) 12**
- a) Explain in detail selection of batteries for Electric Vehicle (EV) and hybrid electric vehicle (HEV).
 - b) Explain Environment and Human Health impact assessments of batteries.
 - c) Why is Battery Management System (BMS) important in Lithium-ion battery, and describes the core functions of BMS?

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Distribution management systems:
 - a) Radial system
 - b) Tree system
 - c) Ring mains system
 - d) All are equally reliable
- 2) The energy strategies of companies have the principle of _____.
 - a) restoring and preserving the environment
 - b) reducing wastes and pollutants
 - c) reducing people about energy conservation
 - d) all of these
- 3) Energy management is a key component of _____.
 - a) Environmental management
 - b) Carbon management
 - c) Nitrogen management
 - d) Water management
- 4) In passive potential energy strategies, _____.
 - a) There is no systematic planning
 - b) Measures with low profitability are not considered
 - c) One should have high knowledge of the energy price
 - d) All of these
- 5) The area of cross-section of the neutral in a 3-wire D.C. system is generally _____ the area of cross-section of main conductor.
 - a) same as
 - b) One- fourth
 - c) One –half
 - d) Double
- 6) Which of the following is formed at the graphite electrode during the charging process of a battery when the lithium-ion moves through the separator?
 - a) Water
 - b) Graphite
 - c) Lithium hydroxide
 - d) Lithium carbide
- 7) In a distribution system, major cost is that of _____.
 - a) Earthing system
 - b) Distribution transformer
 - c) Conductors
 - d) Metres

- 8) The flywheel is accelerated when _____.
- a) Driving torque > Load torque
 - b) Driving torque < Load torque
 - c) Driving torque = Load torque
 - d) Any of the above
- 9) For the same conductor length, same amount of power, same losses and maximum voltage to earth, which system requires minimum conductor area?
- a) 3 wire AC
 - b) 2 wire AC
 - c) 2 wire DC
 - d) single phase
- 10) Cloud base energy management system provides the ability to _____.
- a) Remotely control HVAC
 - b) Collect real-time data
 - c) Generate intelligent, specific and real-time guidance
 - d) All of these
- 11) The null point of a uniformly loaded distributor feed at the equal voltage at both ends lies at _____.
- a) Midpoint
 - b) Either end
 - c) Two third distance from one end
 - d) One-fourth distance from one end
- 12) Why is compressed air in a storage system cooled before storage??
- a) Prevent heat loss during storage
 - b) Improve turn around efficiency
 - c) Reduces storage volume
 - d) Help in a hybrid system
- 13) What is the permissible limit of voltage variations allowed in the distribution systems?
- a) $\pm 2\%$
 - b) $\pm 5\%$
 - c) $\pm 10\%$
 - d) $\pm 6\%$
- 14) As compared to cables, the disadvantages of transmission lines is _____.
- a) inductive interference between power and communication circuits
 - b) exposure to lightning
 - c) exposure to atmospheric hazards like smoke, ice, etc.
 - d) all of the above

Seat No.	
-----------------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer the following (Any Four) 16**
- a) Write a short note on the security and reliability of distributed generation.
 - b) Discuss different integration issues in distributed generation.
 - c) Write a short note on the protection of DGs.
 - d) What are alternative frameworks for distribution tariff development?
 - e) Explain the role of microgrids in Energy Reliability.

- Q.3 Answer the following (Any Two) 12**
- a) Explain different Forecasting methods and their applications.
 - b) What are the Regulatory challenges in the interconnection of DGS to the power systems?
 - c) Write a short note on Loss reduction and Investment reduction.

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) What are the different power quality issues in wind/PV systems?
 - b) Write an overview of technical regulations for the interconnection of DGs.
 - c) Discuss allocation of losses in distribution networks with DG.
 - d) Write a short note on DGs in distribution networks.
 - e) Describe the concept of microgrid & also its advantages & applications.

- Q.5 Answer the following (Any Two) 12**
- a) Discuss energy storage's role in Energy Security.
 - b) Explain the Virtual power plant in detail.
 - c) Explain the Viability of DG integration in the deregulated electricity market.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The flywheel is accelerated when _____.
 - a) Driving torque > Load torque
 - b) Driving torque < Load torque
 - c) Driving torque = Load torque
 - d) Any of the above

- 2) For the same conductor length, same amount of power, same losses and maximum voltage to earth, which system requires minimum conductor area?

a) 3 wire AC	b) 2 wire AC
c) 2 wire DC	d) single phase

- 3) Cloud base energy management system provides the ability to _____.
 - a) Remotely control HVAC
 - b) Collect real-time data
 - c) Generate intelligent, specific and real-time guidance
 - d) All of these

- 4) The null point of a uniformly loaded distributor feed at the equal voltage at both ends lies at _____.
 - a) Midpoint
 - b) Either end
 - c) Two third distance from one end
 - d) One-fourth distance from one end

- 5) Why is compressed air in a storage system cooled before storage??
 - a) Prevent heat loss during storage
 - b) Improve turn around efficiency
 - c) Reduces storage volume
 - d) Help in a hybrid system

- 6) What is the permissible limit of voltage variations allowed in the distribution systems?

a) $\pm 2\%$	b) $\pm 5\%$
c) $\pm 10\%$	d) $\pm 6\%$

Seat No.	
-----------------	--

Set Q

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer the following (Any Four) 16**
- a) Write a short note on the security and reliability of distributed generation.
 - b) Discuss different integration issues in distributed generation.
 - c) Write a short note on the protection of DGs.
 - d) What are alternative frameworks for distribution tariff development?
 - e) Explain the role of microgrids in Energy Reliability.
- Q.3 Answer the following (Any Two) 12**
- a) Explain different Forecasting methods and their applications.
 - b) What are the Regulatory challenges in the interconnection of DGS to the power systems?
 - c) Write a short note on Loss reduction and Investment reduction.

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) What are the different power quality issues in wind/PV systems?
 - b) Write an overview of technical regulations for the interconnection of DGs.
 - c) Discuss allocation of losses in distribution networks with DG.
 - d) Write a short note on DGs in distribution networks.
 - e) Describe the concept of microgrid & also its advantages & applications.
- Q.5 Answer the following (Any Two) 12**
- a) Discuss energy storage's role in Energy Security.
 - b) Explain the Virtual power plant in detail.
 - c) Explain the Viability of DG integration in the deregulated electricity market.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The null point of a uniformly loaded distributor feed at the equal voltage at both ends lies at _____.
 - a) Midpoint
 - b) Either end
 - c) Two third distance from one end
 - d) One-fourth distance from one end
- 2) Why is compressed air in a storage system cooled before storage??
 - a) Prevent heat loss during storage
 - b) Improve turn around efficiency
 - c) Reduces storage volume
 - d) Help in a hybrid system
- 3) What is the permissible limit of voltage variations allowed in the distribution systems?

a) $\pm 2\%$	b) $\pm 5\%$
c) $\pm 10\%$	d) $\pm 6\%$
- 4) As compared to cables, the disadvantages of transmission lines is _____.
 - a) inductive interference between power and communication circuits
 - b) exposure to lightning
 - c) exposure to atmospheric hazards like smoke, ice, etc.
 - d) all of the above
- 5) Distribution management systems:

a) Radial system	b) Tree system
c) Ring mains system	d) All are equally reliable
- 6) The energy strategies of companies have the principle of _____.
 - a) restoring and preserving the environment
 - b) reducing wastes and pollutants
 - c) reducing people about energy conservation
 - d) all of these

- 7) Energy management is a key component of _____.
a) Environmental management b) Carbon management
c) Nitrogen management d) Water management
- 8) In passive potential energy strategies, _____.
a) There is no systematic planning
b) Measures with low profitability are not considered
c) One should have high knowledge of the energy price
d) All of these
- 9) The area of cross-section of the neutral in a 3-wire D.C. system is generally _____ the area of cross-section of main conductor.
a) same as b) One- fourth
c) One –half d) Double
- 10) Which of the following is formed at the graphite electrode during the charging process of a battery when the lithium-ion moves through the separator?
a) Water b) Graphite
c) Lithium hydroxide d) Lithium carbide
- 11) In a distribution system, major cost is that of _____.
a) Earthing system b) Distribution transformer
c) Conductors d) Metres
- 12) The flywheel is accelerated when _____.
a) Driving torque > Load torque
b) Driving torque < Load torque
c) Driving torque = Load torque
d) Any of the above
- 13) For the same conductor length, same amount of power, same losses and maximum voltage to earth, which system requires minimum conductor area?
a) 3 wire AC b) 2 wire AC
c) 2 wire DC d) single phase
- 14) Cloud base energy management system provides the ability to _____.
a) Remotely control HVAC
b) Collect real-time data
c) Generate intelligent, specific and real-time guidance
d) All of these

Seat No.	
-----------------	--

Set R

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer the following (Any Four) 16**
- a) Write a short note on the security and reliability of distributed generation.
 - b) Discuss different integration issues in distributed generation.
 - c) Write a short note on the protection of DGs.
 - d) What are alternative frameworks for distribution tariff development?
 - e) Explain the role of microgrids in Energy Reliability.

- Q.3 Answer the following (Any Two) 12**
- a) Explain different Forecasting methods and their applications.
 - b) What are the Regulatory challenges in the interconnection of DGS to the power systems?
 - c) Write a short note on Loss reduction and Investment reduction.

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) What are the different power quality issues in wind/PV systems?
 - b) Write an overview of technical regulations for the interconnection of DGs.
 - c) Discuss allocation of losses in distribution networks with DG.
 - d) Write a short note on DGs in distribution networks.
 - e) Describe the concept of microgrid & also its advantages & applications.

- Q.5 Answer the following (Any Two) 12**
- a) Discuss energy storage's role in Energy Security.
 - b) Explain the Virtual power plant in detail.
 - c) Explain the Viability of DG integration in the deregulated electricity market.

Seat No.	
----------	--

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following is formed at the graphite electrode during the charging process of a battery when the lithium-ion moves through the separator?
 - a) Water
 - b) Graphite
 - c) Lithium hydroxide
 - d) Lithium carbide
- 2) In a distribution system, major cost is that of _____.
 - a) Earthing system
 - b) Distribution transformer
 - c) Conductors
 - d) Metres
- 3) The flywheel is accelerated when _____.
 - a) Driving torque > Load torque
 - b) Driving torque < Load torque
 - c) Driving torque = Load torque
 - d) Any of the above
- 4) For the same conductor length, same amount of power, same losses and maximum voltage to earth, which system requires minimum conductor area?
 - a) 3 wire AC
 - b) 2 wire AC
 - c) 2 wire DC
 - d) single phase
- 5) Cloud base energy management system provides the ability to _____.
 - a) Remotely control HVAC
 - b) Collect real-time data
 - c) Generate intelligent, specific and real-time guidance
 - d) All of these
- 6) The null point of a uniformly loaded distributor feed at the equal voltage at both ends lies at _____.
 - a) Midpoint
 - b) Either end
 - c) Two third distance from one end
 - d) One-fourth distance from one end

- 7) Why is compressed air in a storage system cooled before storage??
- Prevent heat loss during storage
 - Improve turn around efficiency
 - Reduces storage volume
 - Help in a hybrid system
- 8) What is the permissible limit of voltage variations allowed in the distribution systems?
- $\pm 2\%$
 - $\pm 5\%$
 - $\pm 10\%$
 - $\pm 6\%$
- 9) As compared to cables, the disadvantages of transmission lines is _____.
- inductive interference between power and communication circuits
 - exposure to lightning
 - exposure to atmospheric hazards like smoke, ice, etc.
 - all of the above
- 10) Distribution management systems:
- Radial system
 - Tree system
 - Ring mains system
 - All are equally reliable
- 11) The energy strategies of companies have the principle of _____.
- restoring and preserving the environment
 - reducing wastes and pollutants
 - reducing people about energy conservation
 - all of these
- 12) Energy management is a key component of _____.
- Environmental management
 - Carbon management
 - Nitrogen management
 - Water management
- 13) In passive potential energy strategies, _____.
- There is no systematic planning
 - Measures with low profitability are not considered
 - One should have high knowledge of the energy price
 - All of these
- 14) The area of cross-section of the neutral in a 3-wire D.C. system is generally _____ the area of cross-section of main conductor.
- same as
 - One-fourth
 - One-half
 - Double

Seat No.	
-----------------	--

Set S

T.Y. (B. Tech) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Distributed Energy Integration (BTN07613)

Day & Date: Wednesday 05-06-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Answer the following (Any Four) 16**
- a) Write a short note on the security and reliability of distributed generation.
 - b) Discuss different integration issues in distributed generation.
 - c) Write a short note on the protection of DGs.
 - d) What are alternative frameworks for distribution tariff development?
 - e) Explain the role of microgrids in Energy Reliability.
- Q.3 Answer the following (Any Two) 12**
- a) Explain different Forecasting methods and their applications.
 - b) What are the Regulatory challenges in the interconnection of DGS to the power systems?
 - c) Write a short note on Loss reduction and Investment reduction.

Section – II

- Q.4 Answer the following (Any Four) 16**
- a) What are the different power quality issues in wind/PV systems?
 - b) Write an overview of technical regulations for the interconnection of DGs.
 - c) Discuss allocation of losses in distribution networks with DG.
 - d) Write a short note on DGs in distribution networks.
 - e) Describe the concept of microgrid & also its advantages & applications.
- Q.5 Answer the following (Any Two) 12**
- a) Discuss energy storage's role in Energy Security.
 - b) Explain the Virtual power plant in detail.
 - c) Explain the Viability of DG integration in the deregulated electricity market.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Impulsive transient is _____ in polarity.
 - a) Bidirectional
 - b) Unidirectional
 - c) Both a & b
 - d) None of the above
- 2) Source of transient voltage _____.
 - a) Lightning
 - b) Switching loads ON or OFF
 - c) Interruption of fault circuits
 - d) All of the above
- 3) Full form of CBEMA.
 - a) Computer and Business Equipment Manufacturers' Association
 - b) Core and Business Equipment Manufacturers' Association
 - c) Computer and Board Equipment Manufacturers' Association
 - d) None of the above
- 4) Transformer draw _____ currents, when switched ON, that range between _____ times their normal full-load current.
 - a) surge, 10 to 15
 - b) inrush, 10 to 15
 - c) surge, 1 to 10
 - d) None of the above
- 5) Shunt compensation in EHV line is resorted to _____.
 - a) Improve voltage profile
 - b) Reduce fault current
 - c) Improve stability
 - d) Increase current
- 6) Lightning is a potent source of _____.
 - a) Low frequency transients
 - b) High frequency transients or Impulsive transients
 - c) Oscillatory transients
 - d) None of the above
- 7) What should be the value of sag for proper operation of overhead transmission line?
 - a) Anything
 - b) Neither too low nor too high
 - c) High
 - d) Low

- 8) FACTS provides _____.
- a) Power transfer capability and controllability
 - b) Phase sequence and comparability
 - c) Both a and b
 - d) None
- 9) K is _____.
- a) X/X_c
 - b) $1/X_c$
 - c) X
 - d) X_c/X
- 10) TSSC can be operated line _____.
- a) Continuous
 - b) Discrete
 - c) Step
 - d) None
- 11) Which are the shunt compensation devices?
- a) TCSC
 - b) SSSC
 - c) UPFC
 - d) SVC
- 12) Shunt compensation in an EHV line is used to _____.
- a) Improve stability
 - b) Reduce fault level
 - c) Improve voltage profile
 - d) Substitute for synchronous phase modifier
- 13) Series capacitor is used in a transmission line to _____.
- a) Compensate the voltage drop
 - b) Reduce line losses
 - c) Improve load power factor
 - d) None
- 14) In which IEEE standards recommended practice for electrical power distribution for industrial plants is given.
- a) IEEE 519
 - b) IEEE 1159
 - c) IEEE 518
 - d) IEEE 141

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Define power quality. Why power quality is important now a day? Explain in brief.
- Explain Harmonic sources from commercial and industrial loads.
- Explain different power quality monitoring and diagnostic techniques for various power quality problems.
- Define, explain the causes and effects of the following power quality problems:
 - Voltage sag
 - Voltage unbalance
- With neat diagram explain CBEMA and ITIC curve.

Q.3 Answer the following (Any Two) 12

- Explain the need of power quality standards. Explain power quality standards.
- With neat sketch explain the operation Flicker meters.
- Explain how to locate harmonic sources.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain the FACTS, devices, and its importance in the transmission Network.
- Explain objectives of the series compensation with derivation.
- Explain Basic operating principles of IPFC.
- Explain Brief Description and Definition of FACTS controller.
- Explain switching converter type series compensators.

Q.5 Answer the following (Any Two) 12

- Explain Power flow in AC System.
- Explain Variable Impedance type series compensation.
- Explain overall control structure of UPFC.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) FACTS provides _____.
 - a) Power transfer capability and controllability
 - b) Phase sequence and comparability
 - c) Both a and b
 - d) None
- 2) K is _____.

a) X/X_c	b) $1/X_c$
c) X	d) X_c/X
- 3) TSSC can be operated line _____.

a) Continuous	b) Discrete
c) Step	d) None
- 4) Which are the shunt compensation devices?

a) TCSC	b) SSSC
c) UPFC	d) SVC
- 5) Shunt compensation in an EHV line is used to _____.
 - a) Improve stability
 - b) Reduce fault level
 - c) Improve voltage profile
 - d) Substitute for synchronous phase modifier
- 6) Series capacitor is used in a transmission line to _____.
 - a) Compensate the voltage drop
 - b) Reduce line losses
 - c) Improve load power factor
 - d) None
- 7) In which IEEE standards recommended practice for electrical power distribution for industrial plants is given.

a) IEEE 519	b) IEEE 1159
c) IEEE 518	d) IEEE 141

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Define power quality. Why power quality is important now a day? Explain in brief.
- Explain Harmonic sources from commercial and industrial loads.
- Explain different power quality monitoring and diagnostic techniques for various power quality problems.
- Define, explain the causes and effects of the following power quality problems:
 - Voltage sag
 - Voltage unbalance
- With neat diagram explain CBEMA and ITIC curve.

Q.3 Answer the following (Any Two) 12

- Explain the need of power quality standards. Explain power quality standards.
- With neat sketch explain the operation Flicker meters.
- Explain how to locate harmonic sources.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain the FACTS, devices, and its importance in the transmission Network.
- Explain objectives of the series compensation with derivation.
- Explain Basic operating principles of IPFC.
- Explain Brief Description and Definition of FACTS controller.
- Explain switching converter type series compensators.

Q.5 Answer the following (Any Two) 12

- Explain Power flow in AC System.
- Explain Variable Impedance type series compensation.
- Explain overall control structure of UPFC.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which are the shunt compensation devices?
 - a) TCSC
 - b) SSSC
 - c) UPFC
 - d) SVC
- 2) Shunt compensation in an EHV line is used to _____.
 - a) Improve stability
 - b) Reduce fault level
 - c) Improve voltage profile
 - d) Substitute for synchronous phase modifier
- 3) Series capacitor is used in a transmission line to _____.
 - a) Compensate the voltage drop
 - b) Reduce line losses
 - c) Improve load power factor
 - d) None
- 4) In which IEEE standards recommended practice for electrical power distribution for industrial plants is given.
 - a) IEEE 519
 - b) IEEE 1159
 - c) IEEE 518
 - d) IEEE 141
- 5) Impulsive transient is _____ in polarity.
 - a) Bidirectional
 - b) Unidirectional
 - c) Both a & b
 - d) None of the above
- 6) Source of transient voltage _____.
 - a) Lightning
 - b) Switching loads ON or OFF
 - c) Interruption of fault circuits
 - d) All of the above
- 7) Full form of CBEMA.
 - a) Computer and Business Equipment Manufacturers' Association
 - b) Core and Business Equipment Manufacturers' Association
 - c) Computer and Board Equipment Manufacturers' Association
 - d) None of the above

- 8) Transformer draw _____ currents, when switched ON, that range between _____ times their normal full-load current.
- a) surge, 10 to 15 b) inrush, 10 to 15
c) surge, 1 to 10 d) None of the above
- 9) Shunt compensation in EHV line is resorted to _____.
- a) Improve voltage profile b) Reduce fault current
c) Improve stability d) Increase current
- 10) Lightning is a potent source of _____.
- a) Low frequency transients
b) High frequency transients or Impulsive transients
c) Oscillatory transients
d) None of the above
- 11) What should be the value of sag for proper operation of overhead transmission line?
- a) Anything b) Neither too low nor too high
c) High d) Low
- 12) FACTS provides _____.
- a) Power transfer capability and controllability
b) Phase sequence and comparability
c) Both a and b
d) None
- 13) K is _____.
- a) X/X_c b) $1/X_c$
c) X d) X_c/X
- 14) TSSC can be operated line _____.
- a) Continuous b) Discrete
c) Step d) None

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Define power quality. Why power quality is important now a day? Explain in brief.
- Explain Harmonic sources from commercial and industrial loads.
- Explain different power quality monitoring and diagnostic techniques for various power quality problems.
- Define, explain the causes and effects of the following power quality problems:
 - Voltage sag
 - Voltage unbalance
- With neat diagram explain CBEMA and ITIC curve.

Q.3 Answer the following (Any Two) 12

- Explain the need of power quality standards. Explain power quality standards.
- With neat sketch explain the operation Flicker meters.
- Explain how to locate harmonic sources.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain the FACTS, devices, and its importance in the transmission Network.
- Explain objectives of the series compensation with derivation.
- Explain Basic operating principles of IPFC.
- Explain Brief Description and Definition of FACTS controller.
- Explain switching converter type series compensators.

Q.5 Answer the following (Any Two) 12

- Explain Power flow in AC System.
- Explain Variable Impedance type series compensation.
- Explain overall control structure of UPFC.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Lightning is a potent source of _____.
 a) Low frequency transients
 b) High frequency transients or Impulsive transients
 c) Oscillatory transients
 d) None of the above
- 2) What should be the value of sag for proper operation of overhead transmission line?
 a) Anything
 b) Neither too low nor too high
 c) High
 d) Low
- 3) FACTS provides _____.
 a) Power transfer capability and controllability
 b) Phase sequence and comparability
 c) Both a and b
 d) None
- 4) K is _____.
 a) X/X_c
 b) $1/X_c$
 c) X
 d) X_c/X
- 5) TSSC can be operated line _____.
 a) Continuous
 b) Discrete
 c) Step
 d) None
- 6) Which are the shunt compensation devices?
 a) TCSC
 b) SSSC
 c) UPFC
 d) SVC
- 7) Shunt compensation in an EHV line is used to _____.
 a) Improve stability
 b) Reduce fault level
 c) Improve voltage profile
 d) Substitute for synchronous phase modifier

- 8) Series capacitor is used in a transmission line to _____.
- a) Compensate the voltage drop
 - b) Reduce line losses
 - c) Improve load power factor
 - d) None
- 9) In which IEEE standards recommended practice for electrical power distribution for industrial plants is given.
- a) IEEE 519
 - b) IEEE 1159
 - c) IEEE 518
 - d) IEEE 141
- 10) Impulsive transient is _____ in polarity.
- a) Bidirectional
 - b) Unidirectional
 - c) Both a & b
 - d) None of the above
- 11) Source of transient voltage _____.
- a) Lightning
 - b) Switching loads ON or OFF
 - c) Interruption of fault circuits
 - d) All of the above
- 12) Full form of CBEMA.
- a) Computer and Business Equipment Manufacturers' Association
 - b) Core and Business Equipment Manufacturers' Association
 - c) Computer and Board Equipment Manufacturers' Association
 - d) None of the above
- 13) Transformer draw _____ currents, when switched ON, that range between _____ times their normal full-load current.
- a) surge, 10 to 15
 - b) inrush, 10 to 15
 - c) surge, 1 to 10
 - d) None of the above
- 14) Shunt compensation in EHV line is resorted to _____.
- a) Improve voltage profile
 - b) Reduce fault current
 - c) Improve stability
 - d) Increase current

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality and FACTS (BTN07701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Answer the following (Any Four) 16

- Define power quality. Why power quality is important now a day? Explain in brief.
- Explain Harmonic sources from commercial and industrial loads.
- Explain different power quality monitoring and diagnostic techniques for various power quality problems.
- Define, explain the causes and effects of the following power quality problems:
 - Voltage sag
 - Voltage unbalance
- With neat diagram explain CBEMA and ITIC curve.

Q.3 Answer the following (Any Two) 12

- Explain the need of power quality standards. Explain power quality standards.
- With neat sketch explain the operation Flicker meters.
- Explain how to locate harmonic sources.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain the FACTS, devices, and its importance in the transmission Network.
- Explain objectives of the series compensation with derivation.
- Explain Basic operating principles of IPFC.
- Explain Brief Description and Definition of FACTS controller.
- Explain switching converter type series compensators.

Q.5 Answer the following (Any Two) 12

- Explain Power flow in AC System.
- Explain Variable Impedance type series compensation.
- Explain overall control structure of UPFC.

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Convolution is used to find _____.
 a) The impulse response of an LTI System
 b) Frequency response of a System
 c) The time response of a LTI system
 d) The phase response of a LTI system
- 2) If h_1 , h_2 and h_3 are cascaded, find the overall impulse response.
 a) $h_1 * h_2 * h_3$
 b) $h_1 + h_2 + h_3$
 c) 3
 d) all of the mentioned
- 3) Find the value of $h[n] * \delta[n - 1]$, $\delta[n]$ being the Delta function.
 a) $h[n - 2]$
 b) $h[n]$
 c) $h[n - 1]$
 d) $h[n + 1]$
- 4) Does the system $h(t) = \exp(-7t)$ correspond to a stable system?
 a) Yes
 b) No
 c) Marginally Stable
 d) No one of the above
- 5) All energy signals will have an average power.
 a) Infinite
 b) Zero
 c) Positive
 d) Cannot be calculated
- 6) The even part of a signal $x(t)$ is:
 a) $x(t) + x(-t)$
 b) $x(t) - x(-t)$
 c) $(1/2) * (x(t) + x(-t))$
 d) $(1/2) * (x(t) - x(-t))$
- 7) If sequence $y(n) = x(-n)$ then it is _____.
 a) Causal
 b) Non-Causal
 c) Depends on $x(-n)$
 d) None
- 8) The function $\delta(t - b)$ is _____.
 a) An impulse function
 b) A step function originating at $t = b$
 c) An impulse function originating at $t = b$
 d) no one of the above

- 9) If $x(z) = \{1, 2, 1, 2, 3\}$ ROC is _____.
 \uparrow
- Entire z- plane
 - Entire z-plane except $z = \infty$
 - Entire z-plane except $z = 0, z = \infty$
 - Entire z-plane except $z = 0$
- 10) The ROC must be _____.
 - Divided region
 - Connected region
 - Partly connected & partly divided
 - None
- 11) In DIF FFT algorithm input sequence is _____.
 - In natural order
 - bit reversed order
 - in ascending order
 - descending order
- 12) In DIT FFT algorithm, the number of complex multiplications is given by _____.
 - $N \log_2 (N/2)$
 - $N \log_2 (N/3)$
 - $(N/2) \log_2 N$
 - $N \log_2 (N)$
- 13) In DIF FFT algorithm, Exponent repeat factor (ERF) is given by _____.
 - 2^{M-m}
 - 2^{M-1}
 - 2^{m-M}
 - 2^{M-1}
- 14) The sufficient condition for the existence of DTFT is _____.
 - $\sum_{n=-\infty}^{\infty} |x(n)| < \infty$
 - $\sum_{n=-\infty}^{\infty} |x(n)| > \infty$
 - $\sum_{n=-\infty}^{\infty} |x(n)| = 0$
 - None of above

Seat
No.

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

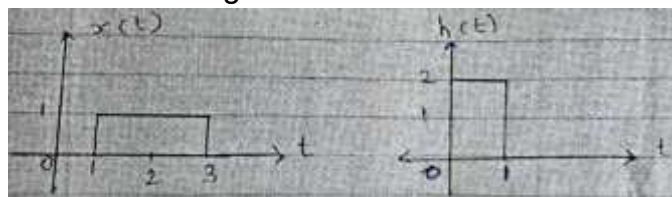
Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Answer any four of the following.****16**

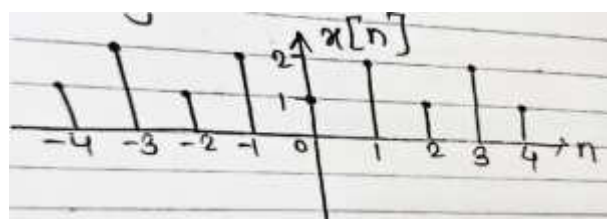
- a) Define the terms w.r.t. signals.
 i) Even signal, Odd signal
 ii) Energy signal, Power signal
 iii) Causal and Non-causal signal
- b) Determine the energy and power of the signal.
 $X(n) = (0.5)^n \cdot u(n)$
- c) Explain elementary signal.
 i) Unit step
 ii) Unit Impulse
 iii) Unit Ramp
- d) Derive the expression for even & odd components of a CT signal.
- e) Check the following property of signal.
 i) Stable, unstable
 ii) Invertible, Non-Invertible
 If, $Y(t) = x(t) + x(t + 3)$

Q.3 Attempt any Two of the following.**12**

- a) Find the convolution of two signal as shown in below.



- b) Explain properties of CT-LTI system.
- c) A DT sequence $X[n]$ is shown below; sketch and label the following signals.
 i) $X[n + 2]$ ii) $X[n - 4]$ iii) $X[2n]$



Section – II

Q.4 Attempt Any Four of the following:**16**

- a) Find the Z-Transform and ROC of given signal.
 $x(n) = a^n \cdot u(n)$
- b) Determine the discrete time signal $x(n)$ whose Fourier transform is,

$$X(e^{j\omega}) = \begin{cases} 1, & -\omega_c < \omega < \omega_c \\ 0 & -\omega_c < |\omega| < \pi \end{cases}$$
- c) Explain the time scaling property of Fourier transform and hence find the Fourier transform of $f(t) = e^{-0.5t} u(t)$
- d) Explain the Continuous time Fourier series for a periodic signal.
- e) Explain Complex exponential Fourier series.

Q.5 Attempt Any Two of the following.**12**

- a) State the properties of Z-Transform and explain any two.
- b) Compute 8-point DFT of sequence using DIF FFT algorithm
 $x(n) = 1$ for $0 < n < 7$
 $= 0$ otherwise
- c) List properties of DFT and explain any two.

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The function $\delta(t - b)$ is _____.
 - a) An impulse function
 - b) A step function originating at $t = b$
 - c) An impulse function originating at $t = b$
 - d) no one of the above
- 2) If $x(z) = \{1, 2, 1, 2, 3\}$ ROC is _____.

↑

 - a) Entire z- plane
 - b) Entire z-plane except $z = \infty$
 - c) Entire z-plane except $z = 0, z = \infty$
 - d) Entire z-plane except $z = 0$
- 3) The ROC must be _____.
 - a) Divided region
 - b) Connected region
 - c) Partly connected & partly divided
 - d) None
- 4) In DIF FFT algorithm input sequence is _____.

a) In natural order	b) bit reversed order
c) in ascending order	d) descending order
- 5) In DIT FFT algorithm, the number of complex multiplications is given by _____.

a) $N \log_2 (N/2)$	b) $N \log_2 (N/3)$
c) $(N/2) \log_2 N$	d) $N \log_2 (N)$
- 6) In DIF FFT algorithm, Exponent repeat factor (ERF) is given by _____.

a) 2^{M-m}	b) 2^{M-1}
c) 2^{m-M}	d) 2^{M-1}
- 7) The sufficient condition for the existence of DTFT is _____.

a) $\sum_{n=-\infty}^{\infty} x(n) < \infty$	b) $\sum_{n=-\infty}^{\infty} x(n) > \infty$
c) $\sum_{n=-\infty}^{\infty} x(n) = 0$	d) None of above

- 8) Convolution is used to find _____.
- a) The impulse response of an LTI System
 - b) Frequency response of a System
 - c) The time response of a LTI system
 - d) The phase response of a LTI system
- 9) If h_1 , h_2 and h_3 are cascaded, find the overall impulse response.
- a) $h_1 * h_2 * h_3$
 - b) $h_1 + h_2 + h_3$
 - c) 3
 - d) all of the mentioned
- 10) Find the value of $h[n] * \delta[n - 1]$, $\delta[n]$ being the Delta function.
- a) $h[n - 2]$
 - b) $h[n]$
 - c) $h[n - 1]$
 - d) $h[n + 1]$
- 11) Does the system $h(t) = \exp(-7t)$ correspond to a stable system?
- a) Yes
 - b) No
 - c) Marginally Stable
 - d) No one of the above
- 12) All energy signals will have an average power.
- a) Infinite
 - b) Zero
 - c) Positive
 - d) Cannot be calculated
- 13) The even part of a signal $x(t)$ is:
- a) $x(t) + x(-t)$
 - b) $x(t) - x(-t)$
 - c) $(1/2) * (x(t) + x(-t))$
 - d) $(1/2) * (x(t) - x(-t))$
- 14) If sequence $y(n) = x(-n)$ then it is _____.
- a) Causal
 - b) Non-Causal
 - c) Depends on $x(-n)$
 - d) None

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any four of the following.

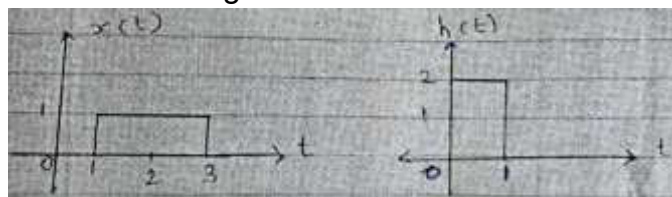
16

- a) Define the terms w.r.t. signals.
 - i) Even signal, Odd signal
 - ii) Energy signal, Power signal
 - iii) Causal and Non-causal signal
- b) Determine the energy and power of the signal.
 $X(n) = (0.5)^n \cdot u(n)$
- c) Explain elementary signal.
 - i) Unit step
 - ii) Unit Impulse
 - iii) Unit Ramp
- d) Derive the expression for even & odd components of a CT signal.
- e) Check the following property of signal.
 - i) Stable, unstable
 - ii) Invertible, Non-Invertible
 If, $Y(t) = x(t) + x(t + 3)$

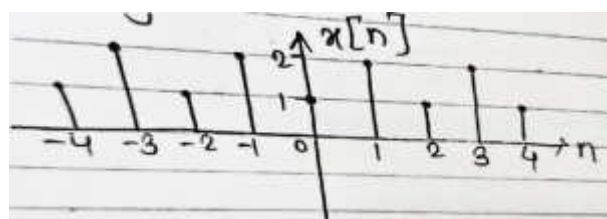
Q.3 Attempt any Two of the following.

12

- a) Find the convolution of two signal as shown in below.



- b) Explain properties of CT-LTI system.
- c) A DT sequence $X[n]$ is shown below; sketch and label the following signals.
 - i) $X[n + 2]$
 - ii) $X[n - 4]$
 - iii) $X[2n]$



Section – II

Q.4 Attempt Any Four of the following:**16**

- a) Find the Z-Transform and ROC of given signal.
 $x(n) = a^n \cdot u(n)$
- b) Determine the discrete time signal $x(n)$ whose Fourier transform is,

$$X(e^{j\omega}) = \begin{cases} 1, & -\omega_c < \omega < \omega_c \\ 0 & -\omega_c < |\omega| < \pi \end{cases}$$
- c) Explain the time scaling property of Fourier transform and hence find the Fourier transform of $f(t) = e^{-0.5t} u(t)$
- d) Explain the Continuous time Fourier series for a periodic signal.
- e) Explain Complex exponential Fourier series.

Q.5 Attempt Any Two of the following.**12**

- a) State the properties of Z-Transform and explain any two.
- b) Compute 8-point DFT of sequence using DIF FFT algorithm
 $x(n) = 1$ for $0 < n < 7$
 $= 0$ otherwise
- c) List properties of DFT and explain any two.

Seat
No.

Set R

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) In DIF FFT algorithm input sequence is _____.
 - a) In natural order
 - b) bit reversed order
 - c) in ascending order
 - d) descending order
- 2) In DIT FFT algorithm, the number of complex multiplications is given by _____.
 - a) $N \log_2 (N/2)$
 - b) $N \log_2 (N/3)$
 - c) $(N/2) \log_2 N$
 - d) $N \log_2 (N)$
- 3) In DIF FFT algorithm, Exponent repeat factor (ERF) is given by _____.
 - a) 2^{M-m}
 - b) 2^{M-1}
 - c) 2^{m-M}
 - d) 2^{M-1}
- 4) The sufficient condition for the existence of DTFT is _____.
 - a) $\sum_{n=-\infty}^{\infty} |x(n)| < \infty$
 - b) $\sum_{n=-\infty}^{\infty} |x(n)| > \infty$
 - c) $\sum_{n=-\infty}^{\infty} |x(n)| = 0$
 - d) None of above
- 5) Convolution is used to find _____.
 - a) The impulse response of an LTI System
 - b) Frequency response of a System
 - c) The time response of a LTI system
 - d) The phase response of a LTI system
- 6) If h_1 , h_2 and h_3 are cascaded, find the overall impulse response.
 - a) $h_1 * h_2 * h_3$
 - b) $h_1 + h_2 + h_3$
 - c) 3
 - d) all of the mentioned
- 7) Find the value of $h[n] * \delta [n - 1]$, $\delta[n]$ being the Delta function.
 - a) $h[n - 2]$
 - b) $h[n]$
 - c) $h[n - 1]$
 - d) $h[n + 1]$
- 8) Does the system $h(t) = \exp(-7t)$ correspond to a stable system?
 - a) Yes
 - b) No
 - c) Marginally Stable
 - d) No one of the above
- 9) All energy signals will have an average power.
 - a) Infinite
 - b) Zero
 - c) Positive
 - d) Cannot be calculated

- 10) The even part of a signal $x(t)$ is:
- a) $x(t) + x(-t)$
 - b) $x(t) - x(-t)$
 - c) $(1/2) * (x(t) + x(-t))$
 - d) $(1/2) * (x(t) - x(-t))$
- 11) If sequence $y(n) = x(-n)$ then it is _____.
- a) Causal
 - b) Non-Causal
 - c) Depends on $x(-n)$
 - d) None
- 12) The function $\delta(t - b)$ is _____.
- a) An impulse function
 - b) A step function originating at $t = b$
 - c) An impulse function originating at $t = b$
 - d) no one of the above
- 13) If $x(z) = \{1, 2, 1, 2, 3\}$ ROC is _____.
- ↑
- a) Entire z - plane
 - b) Entire z -plane except $z = \infty$
 - c) Entire z -plane except $z = 0, z = \infty$
 - d) Entire z -plane except $z = 0$
- 14) The ROC must be _____.
- a) Divided region
 - b) Connected region
 - c) Partly connected & partly divided
 - d) None

Seat
No.

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any four of the following.

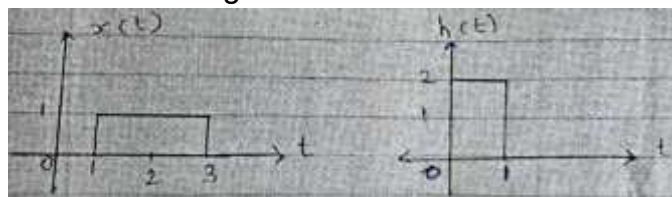
16

- a) Define the terms w.r.t. signals.
 i) Even signal, Odd signal
 ii) Energy signal, Power signal
 iii) Causal and Non-causal signal
- b) Determine the energy and power of the signal.
 $X(n) = (0.5)^n \cdot u(n)$
- c) Explain elementary signal.
 i) Unit step
 ii) Unit Impulse
 iii) Unit Ramp
- d) Derive the expression for even & odd components of a CT signal.
- e) Check the following property of signal.
 i) Stable, unstable
 ii) Invertible, Non-Invertible
 If, $Y(t) = x(t) + x(t + 3)$

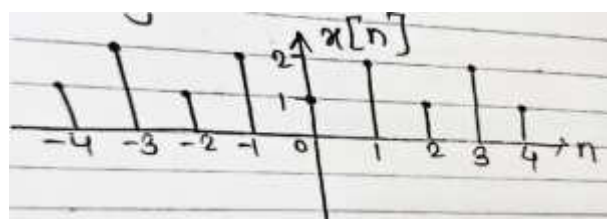
Q.3 Attempt any Two of the following.

12

- a) Find the convolution of two signal as shown in below.



- b) Explain properties of CT-LTI system.
- c) A DT sequence $X[n]$ is shown below; sketch and label the following signals.
 i) $X[n + 2]$ ii) $X[n - 4]$ iii) $X[2n]$



Section – II

Q.4 Attempt Any Four of the following:**16**

- a) Find the Z-Transform and ROC of given signal.
 $x(n) = a^n \cdot u(n)$
- b) Determine the discrete time signal $x(n)$ whose Fourier transform is,
$$X(e^{j\omega}) = \begin{cases} 1, & -\omega_c < \omega < \omega_c \\ 0 & -\omega_c < |\omega| < \pi \end{cases}$$
- c) Explain the time scaling property of Fourier transform and hence find the Fourier transform of $f(t) = e^{-0.5t} u(t)$
- d) Explain the Continuous time Fourier series for a periodic signal.
- e) Explain Complex exponential Fourier series.

Q.5 Attempt Any Two of the following.**12**

- a) State the properties of Z-Transform and explain any two.
- b) Compute 8-point DFT of sequence using DIF FFT algorithm
 $x(n) = 1$ for $0 < n < 7$
 $= 0$ otherwise
- c) List properties of DFT and explain any two.

Seat No.	
----------	--

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no. 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The even part of a signal $x(t)$ is:

a) $x(t) + x(-t)$	b) $x(t) - x(-t)$
c) $(1/2) * (x(t) + x(-t))$	d) $(1/2) * (x(t) - x(-t))$
- 2) If sequence $y(n) = x(-n)$ then it is _____.

a) Causal	b) Non-Causal
c) Depends on $x(-n)$	d) None
- 3) The function $\delta(t - b)$ is _____.

a) An impulse function
b) A step function originating at $t = b$
c) An impulse function originating at $t = b$
d) no one of the above
- 4) If $x(z) = \{1, 2, 1, 2, 3\}$ ROC is _____.

↑
a) Entire z- plane
b) Entire z-plane except $z = \infty$
c) Entire z-plane except $z = 0, z = \infty$
d) Entire z-plane except $z = 0$
- 5) The ROC must be _____.

a) Divided region
b) Connected region
c) Partly connected & partly divided
d) None
- 6) In DIF FFT algorithm input sequence is _____.

a) In natural order	b) bit reversed order
c) in ascending order	d) descending order
- 7) In DIT FFT algorithm, the number of complex multiplications is given by _____.

a) $N \log_2 (N/2)$	b) $N \log_2 (N/3)$
c) $(N/2) \log_2 N$	d) $N \log_2 (N)$

Seat
No.

Fourth Y. (B Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Signals and System (BTN07702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Answer any four of the following.

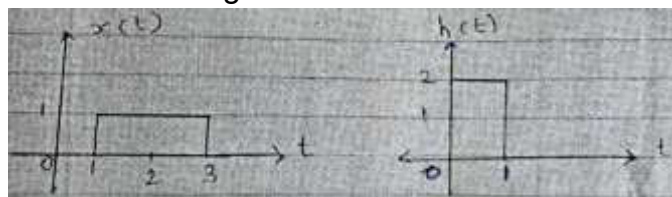
16

- a) Define the terms w.r.t. signals.
 i) Even signal, Odd signal
 ii) Energy signal, Power signal
 iii) Causal and Non-causal signal
- b) Determine the energy and power of the signal.
 $X(n) = (0.5)^n \cdot u(n)$
- c) Explain elementary signal.
 i) Unit step
 ii) Unit Impulse
 iii) Unit Ramp
- d) Derive the expression for even & odd components of a CT signal.
- e) Check the following property of signal.
 i) Stable, unstable
 ii) Invertible, Non-Invertible
 If, $Y(t) = x(t) + x(t + 3)$

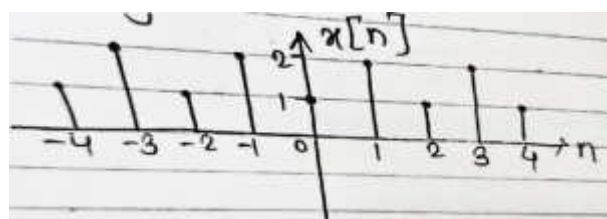
Q.3 Attempt any Two of the following.

12

- a) Find the convolution of two signal as shown in below.



- b) Explain properties of CT-LTI system.
- c) A DT sequence $X[n]$ is shown below; sketch and label the following signals.
 i) $X[n + 2]$ ii) $X[n - 4]$ iii) $X[2n]$



Section – II

Q.4 Attempt Any Four of the following: **16**

- a) Find the Z-Transform and ROC of given signal.
 $x(n) = a^n \cdot u(n)$
- b) Determine the discrete time signal $x(n)$ whose Fourier transform is,
$$X(e^{j\omega}) = \begin{cases} 1, & -\omega_c < \omega < \omega_c \\ 0 & -\omega_c < |\omega| < \pi \end{cases}$$
- c) Explain the time scaling property of Fourier transform and hence find the Fourier transform of $f(t) = e^{-0.5t} u(t)$
- d) Explain the Continuous time Fourier series for a periodic signal.
- e) Explain Complex exponential Fourier series.

Q.5 Attempt Any Two of the following. **12**

- a) State the properties of Z-Transform and explain any two.
- b) Compute 8-point DFT of sequence using DIF FFT algorithm
 $x(n) = 1$ for $0 < n < 7$
 $= 0$ otherwise
- c) List properties of DFT and explain any two.

Seat No.	
----------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The most efficient torque producing actuating structure for the induction type relays is _____.
 - a) Shaded pole structure
 - b) Watt hour meter structure
 - c) Induction cup structure
 - d) Single induction loop structure
- 2) Discrimination between main and back up protection is provided by the use of relays which are _____.
 - a) Fast
 - b) Sensitive
 - c) Slow
 - d) None of the above
- 3) Protection by fuses is generally not used beyond _____.
 - a) 20 A
 - b) 50 A
 - c) 100 A
 - d) 200 A
- 4) By which of the following methods major portion of the heat generated in a H.R.C. fuse is dissipated?
 - a) Radiation
 - b) Convection
 - c) Conduction
 - d) All of the above
- 5) The fuse rating is expressed in terms of _____.
 - a) Current
 - b) Voltage
 - c) VAR
 - d) KVA
- 6) Admittance relay is:
 - a) Non-directional relay
 - b) Directional relay
 - c) Differential relay
 - d) All of the above
- 7) For ground fault, which of the relay is preferred:
 - a) Plain impedance relay
 - b) Directional relay
 - c) Reactance relay
 - d) Overcurrent relay
- 8) For which of the following protection from negative sequence currents is provided?
 - a) Generators
 - b) Motors
 - c) Transmission line
 - d) Transformers

- 9) To limit short-circuit current in a power system are used.
- a) Earth wires
 - b) Isolators
 - c) H.R.C. fuses
 - d) Reactors
- 10) Series reactors should have _____.
- a) Low resistance
 - b) High resistance
 - c) Low impedance
 - d) High impedance
- 11) Why the resistance switching is used in air blast circuit breaker?
- a) Reduce the magnitude of fault current.
 - b) Control the CB operating time.
 - c) Damp out the fast transient.
 - d) Change the fault current power factor.
- 12) Why is it difficult to interrupt a capacitive circuit?
- a) The current has a leading power factor.
 - b) The restriking voltage can be high.
 - c) Current magnitude is very small.
 - d) Stored energy in the capacitor is very high.
- 13) What is the main purpose of oil in oil circuit breakers?
- a) Provide insulation
 - b) Quenching arc.
 - c) Provide cooling of contacts
 - d) None of the above
- 14) The protection against over-voltage due to lightening is provided by _____.
- a) Use of surge diverters
 - b) Low tower footing resistance
 - c) Use of overhead ground wires
 - d) Any of the above

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) What do you mean by zones of protection? Explain primary and backup protection.
 - b) Define the following
 - i) Pick up current
 - ii) Fusing factor
 - iii) Plug setting Multiplier
 - iv) Cut-off current
 - c) Explain how reactance relay is used for distance protection with its characteristics.
 - d) What are the factors affecting for selection of fuse?
 - e) Explain microprocessor based overcurrent relay with block diagram.
 - f) Explain simple differential relay with neat diagram.
- Q.3 Solve any TWO. 12**
- a) Derive torque equation for induction relay in detail.
 - b) Explain in brief PSM and TSM in detail.
 - c) Describe microprocessor based reactance relay with block diagram with its flow chart in detail.

Section – II

- Q.4 Solve any FOUR. 16**
- a) Explain differential protection scheme used for transformer.
 - b) Explain the phenomenon of capacitive current interruption with suitable waveforms.
 - c) Briefly describe MCB and MCCB.
 - d) With neat sketch explain metal oxide ZnO arrestors.
 - e) Explain different methods of testing of circuit breaker.
 - f) Explain protection of induction motor for different faults.
- Q.5 Solve any TWO. 12**
- a) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
 - b) Explain protection of generator against motoring and excitation failure.
 - c) What is the phenomenon of arcing in circuit breaker? Explain the methods of arc extinction in detail.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) For which of the following protection from negative sequence currents is provided?

a) Generators	b) Motors
c) Transmission line	d) Transformers
- 2) To limit short-circuit current in a power system are used.

a) Earth wires	b) Isolators
c) H.R.C. fuses	d) Reactors
- 3) Series reactors should have _____.

a) Low resistance	b) High resistance
c) Low impedance	d) High impedance
- 4) Why the resistance switching is used in air blast circuit breaker?
 - a) Reduce the magnitude of fault current.
 - b) Control the CB operating time.
 - c) Damp out the fast transient.
 - d) Change the fault current power factor.
- 5) Why is it difficult to interrupt a capacitive circuit?
 - a) The current has a leading power factor.
 - b) The restriking voltage can be high.
 - c) Current magnitude is very small.
 - d) Stored energy in the capacitor is very high.
- 6) What is the main purpose of oil in oil circuit breakers?

a) Provide insulation	b) Quenching arc.
c) Provide cooling of contacts	d) None of the above
- 7) The protection against over-voltage due to lightning is provided by _____.

a) Use of surge diverters	b) Low tower footing resistance
c) Use of overhead ground wires	d) Any of the above

- 8) The most efficient torque producing actuating structure for the induction type relays is _____.
- a) Shaded pole structure
 - b) Watt hour meter structure
 - c) Induction cup structure
 - d) Single induction loop structure
- 9) Discrimination between main and back up protection is provided by the use of relays which are _____.
- a) Fast
 - b) Sensitive
 - c) Slow
 - d) None of the above
- 10) Protection by fuses is generally not used beyond _____.
- a) 20 A
 - b) 50 A
 - c) 100 A
 - d) 200 A
- 11) By which of the following methods major portion of the heat generated in a H.R.C. fuse is dissipated?
- a) Radiation
 - b) Convection
 - c) Conduction
 - d) All of the above
- 12) The fuse rating is expressed in terms of _____.
- a) Current
 - b) Voltage
 - c) VAR
 - d) KVA
- 13) Admittance relay is:
- a) Non-directional relay
 - b) Directional relay
 - c) Differential relay
 - d) All of the above
- 14) For ground fault, which of the relay is preferred:
- a) Plain impedance relay
 - b) Directional relay
 - c) Reactance relay
 - d) Overcurrent relay

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) What do you mean by zones of protection? Explain primary and backup protection.
 - b) Define the following
 - i) Pick up current
 - ii) Fusing factor
 - iii) Plug setting Multiplier
 - iv) Cut-off current
 - c) Explain how reactance relay is used for distance protection with its characteristics.
 - d) What are the factors affecting for selection of fuse?
 - e) Explain microprocessor based overcurrent relay with block diagram.
 - f) Explain simple differential relay with neat diagram.
- Q.3 Solve any TWO. 12**
- a) Derive torque equation for induction relay in detail.
 - b) Explain in brief PSM and TSM in detail.
 - c) Describe microprocessor based reactance relay with block diagram with its flow chart in detail.

Section – II

- Q.4 Solve any FOUR. 16**
- a) Explain differential protection scheme used for transformer.
 - b) Explain the phenomenon of capacitive current interruption with suitable waveforms.
 - c) Briefly describe MCB and MCCB.
 - d) With neat sketch explain metal oxide ZnO arrestors.
 - e) Explain different methods of testing of circuit breaker.
 - f) Explain protection of induction motor for different faults.
- Q.5 Solve any TWO. 12**
- a) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
 - b) Explain protection of generator against motoring and excitation failure.
 - c) What is the phenomenon of arcing in circuit breaker? Explain the methods of arc extinction in detail.

Seat No.	
-----------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Why the resistance switching is used in air blast circuit breaker?
 - a) Reduce the magnitude of fault current.
 - b) Control the CB operating time.
 - c) Damp out the fast transient.
 - d) Change the fault current power factor.
- 2) Why is it difficult to interrupt a capacitive circuit?
 - a) The current has a leading power factor.
 - b) The restriking voltage can be high.
 - c) Current magnitude is very small.
 - d) Stored energy in the capacitor is very high.
- 3) What is the main purpose of oil in oil circuit breakers?

a) Provide insulation	b) Quenching arc.
c) Provide cooling of contacts	d) None of the above
- 4) The protection against over-voltage due to lightening is provided by _____.

a) Use of surge diverters	b) Low tower footing resistance
c) Use of overhead ground wires	d) Any of the above
- 5) The most efficient torque producing actuating structure for the induction type relays is _____.
 - a) Shaded pole structure
 - b) Watt hour meter structure
 - c) Induction cup structure
 - d) Single induction loop structure
- 6) Discrimination between main and back up protection is provided by the use of relays which are _____.

a) Fast	b) Sensitive
c) Slow	d) None of the above
- 7) Protection by fuses is generally not used beyond _____.

a) 20 A	b) 50 A
c) 100 A	d) 200 A

- 8) By which of the following methods major portion of the heat generated in a H.R.C. fuse is dissipated?
- a) Radiation
 - b) Convection
 - c) Conduction
 - d) All of the above
- 9) The fuse rating is expressed in terms of _____.
- a) Current
 - b) Voltage
 - c) VAR
 - d) KVA
- 10) Admittance relay is:
- a) Non-directional relay
 - b) Directional relay
 - c) Differential relay
 - d) All of the above
- 11) For ground fault, which of the relay is preferred:
- a) Plain impedance relay
 - b) Directional relay
 - c) Reactance relay
 - d) Overcurrent relay
- 12) For which of the following protection from negative sequence currents is provided?
- a) Generators
 - b) Motors
 - c) Transmission line
 - d) Transformers
- 13) To limit short-circuit current in a power system are used.
- a) Earth wires
 - b) Isolators
 - c) H.R.C. fuses
 - d) Reactors
- 14) Series reactors should have _____.
- a) Low resistance
 - b) High resistance
 - c) Low impedance
 - d) High impedance

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) What do you mean by zones of protection? Explain primary and backup protection.
 - b) Define the following
 - i) Pick up current
 - ii) Fusing factor
 - iii) Plug setting Multiplier
 - iv) Cut-off current
 - c) Explain how reactance relay is used for distance protection with its characteristics.
 - d) What are the factors affecting for selection of fuse?
 - e) Explain microprocessor based overcurrent relay with block diagram.
 - f) Explain simple differential relay with neat diagram.
- Q.3 Solve any TWO. 12**
- a) Derive torque equation for induction relay in detail.
 - b) Explain in brief PSM and TSM in detail.
 - c) Describe microprocessor based reactance relay with block diagram with its flow chart in detail.

Section – II

- Q.4 Solve any FOUR. 16**
- a) Explain differential protection scheme used for transformer.
 - b) Explain the phenomenon of capacitive current interruption with suitable waveforms.
 - c) Briefly describe MCB and MCCB.
 - d) With neat sketch explain metal oxide ZnO arrestors.
 - e) Explain different methods of testing of circuit breaker.
 - f) Explain protection of induction motor for different faults.
- Q.5 Solve any TWO. 12**
- a) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
 - b) Explain protection of generator against motoring and excitation failure.
 - c) What is the phenomenon of arcing in circuit breaker? Explain the methods of arc extinction in detail.

Seat No.	
-----------------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Admittance relay is:

a) Non-directional relay	b) Directional relay
c) Differential relay	d) All of the above
- 2) For ground fault, which of the relay is preferred:

a) Plain impedance relay	b) Directional relay
c) Reactance relay	d) Overcurrent relay
- 3) For which of the following protection from negative sequence currents is provided?

a) Generators	b) Motors
c) Transmission line	d) Transformers
- 4) To limit short-circuit current in a power system are used.

a) Earth wires	b) Isolators
c) H.R.C. fuses	d) Reactors
- 5) Series reactors should have _____.

a) Low resistance	b) High resistance
c) Low impedance	d) High impedance
- 6) Why the resistance switching is used in air blast circuit breaker?
 - a) Reduce the magnitude of fault current.
 - b) Control the CB operating time.
 - c) Damp out the fast transient.
 - d) Change the fault current power factor.
- 7) Why is it difficult to interrupt a capacitive circuit?
 - a) The current has a leading power factor.
 - b) The restriking voltage can be high.
 - c) Current magnitude is very small.
 - d) Stored energy in the capacitor is very high.
- 8) What is the main purpose of oil in oil circuit breakers?

a) Provide insulation	b) Quenching arc.
c) Provide cooling of contacts	d) None of the above

- 9) The protection against over-voltage due to lightning is provided by _____.
a) Use of surge diverters b) Low tower footing resistance
c) Use of overhead ground wires d) Any of the above
- 10) The most efficient torque producing actuating structure for the induction type relays is _____.
a) Shaded pole structure
b) Watt hour meter structure
c) Induction cup structure
d) Single induction loop structure
- 11) Discrimination between main and back up protection is provided by the use of relays which are _____.
a) Fast b) Sensitive
c) Slow d) None of the above
- 12) Protection by fuses is generally not used beyond _____.
a) 20 A b) 50 A
c) 100 A d) 200 A
- 13) By which of the following methods major portion of the heat generated in a H.R.C. fuse is dissipated?
a) Radiation b) Convection
c) Conduction d) All of the above
- 14) The fuse rating is expressed in terms of _____.
a) Current b) Voltage
c) VAR d) KVA

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (BTN07703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Section – I

- Q.2 Solve any FOUR. 16**
- a) What do you mean by zones of protection? Explain primary and backup protection.
 - b) Define the following
 - i) Pick up current
 - ii) Fusing factor
 - iii) Plug setting Multiplier
 - iv) Cut-off current
 - c) Explain how reactance relay is used for distance protection with its characteristics.
 - d) What are the factors affecting for selection of fuse?
 - e) Explain microprocessor based overcurrent relay with block diagram.
 - f) Explain simple differential relay with neat diagram.
- Q.3 Solve any TWO. 12**
- a) Derive torque equation for induction relay in detail.
 - b) Explain in brief PSM and TSM in detail.
 - c) Describe microprocessor based reactance relay with block diagram with its flow chart in detail.

Section – II

- Q.4 Solve any FOUR. 16**
- a) Explain differential protection scheme used for transformer.
 - b) Explain the phenomenon of capacitive current interruption with suitable waveforms.
 - c) Briefly describe MCB and MCCB.
 - d) With neat sketch explain metal oxide ZnO arrestors.
 - * e) Explain different methods of testing of circuit breaker.
 - f) Explain protection of induction motor for different faults.
- Q.5 Solve any TWO. 12**
- a) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
 - b) Explain protection of generator against motoring and excitation failure.
 - c) What is the phenomenon of arcing in circuit breaker? Explain the methods of arc extinction in detail.

- 7) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually _____.
a) Much shorter than the statistical time lag
b) Much greater than the statistical time lag
c) Equal to the statistical time lag
d) None of these
- 8) The necessary condition for performing sphere gap test is _____.
a) Should be between 0.7 and 0.8?
b) The length of gap should be smaller than radius of sphere
c) The length of gap should be 4 times greater than radius of sphere
d) An impulse wave of 50000 kV should be applied Wave front time
- 9) Impulse testing of transformers is done using _____.
a) Full wave standard impulse
b) Chopped wave standard impulse
c) Half wave standard impulse
d) only (a) and (b)
- 10) In routine test, the cable is tested by applying an ac voltage _____.
a) 2 times the rated value b) 2.5 times the rated value
c) 3 times the rated value d) 3.5 times the rated value
- 11) A generating voltmeter is used to measure a.c. voltages if the angular frequency of voltage is _____.
a) Half the angular frequency of motor used
b) Twice the angular frequency of motor used
c) Thrice the angular frequency of the motor used
d) None of the above
- 12) Protective resistance to be connected between the sphere gap and the test equipment is required while measuring _____.
a) power frequency and higher frequency a.c. voltage
b) power frequency and impulse voltage
c) higher frequency a.c. voltages and impulse voltage
d) all kinds of voltages
- 13) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:
a) Quasi-peak value b) Peak value
c) Average value d) All of the above
- 14) High frequency and impulse currents are measured using _____.
a) Resistive shunts
b) Inductive elements
c) Hall and Faraday effect devices
d) All of the above

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following. 16**
- a) Explain estimation and control of electric stresses.
 - b) Explain post breakdown phenomena in gases along with glow arc discharge from neat drawn figure.
 - c) Write a short note on conduction and breakdown in commercial liquids.
 - d) Explain surge voltages and their distribution.
 - e) Explain practical considerations in using gases for insulation purposes.
- Q.3 Attempt any two of the following. 12**
- a) Explain post breakdown phenomena and applications.
 - b) State and derive Paschen's law and equation along with Explanations of V and Pd.
 - c) Write short on breakdown in solid dielectrics due to treeing and tracking

Section – II

- Q.4 Attempt any four of the following. 16**
- a) Explain cockroft - walton multiplier.
 - b) Explain briefly various tests to be carried out on a bushing.
 - c) Explain components of multistage impulse generator.
 - d) Explain resonant transformer its principle and operation.
 - e) Write a short note on grounding of impulse testing laboratories.
- Q.5 Attempt any two of the following. 12**
- a) Explain Generating voltmeter and Capacitance voltage Transformer.
 - b) Discuss various methods of measuring high d.c. and a.c. currents
 - c) Discuss the Test facilities, activity and studies in high voltage laboratories.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The necessary condition for performing sphere gap test is _____.
 - a) Should be between 0.7 and 0.8?
 - b) The length of gap should be smaller than radius of sphere
 - c) The length of gap should be 4 times greater than radius of sphere
 - d) An impulse wave of 50000 kV should be applied Wave front time
- 2) Impulse testing of transformers is done using _____.
 - a) Full wave standard impulse
 - b) Chopped wave standard impulse
 - c) Half wave standard impulse
 - d) only (a) and (b)
- 3) In routine test, the cable is tested by applying an ac voltage _____.

a) 2 times the rated value	b) 2.5 times the rated value
c) 3 times the rated value	d) 3.5 times the rated value
- 4) A generating voltmeter is used to measure a.c. voltages if the angular frequency of voltage is _____.
 - a) Half the angular frequency of motor used
 - b) Twice the angular frequency of motor used
 - c) Thrice the angular frequency of the motor used
 - d) None of the above
- 5) Protective resistance to be connected between the sphere gap and the test equipment is required while measuring _____.
 - a) power frequency and higher frequency a.c. voltage
 - b) power frequency and impulse voltage
 - c) higher frequency a.c. voltages and impulse voltage
 - d) all kinds of voltages
- 6) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:

a) Quasi-peak value	b) Peak value
c) Average value	d) All of the above

- 7) High frequency and impulse currents are measured using _____.
- Resistive shunts
 - Inductive elements
 - Hall and Faraday effect devices
 - All of the above
- 8) The accepted value of dielectric strength of transformer oil is _____.
- 30 kV
 - 30 kV/cm
 - 30 kV/cm for one min.
 - None of the above
- 9) The conventional direction of electric field is _____.
- Positive to negative
 - Negative to positive
 - No specific direction
 - Direction cannot be determined
- 10) The requirement of gases for insulation purpose is _____.
- High dielectric strength and thermal stability
 - High dielectric strength only
 - High thermal stability only
 - None of the above
- 11) During reconditioning of transformer oil it is economical to use electrostatic filters if the water content of oil is _____.
- greater than 4 ppm
 - greater than 2 ppm
 - less than 2 ppm
 - electrostatic filters are never used
- 12) The intrinsic breakdown strength of solid dielectrics is about _____.
- 50 to 100 kV/mm
 - 500 to 1000 kV/mm
 - 5 to 10 kV/mm
 - 1 to 5 kV/mm
- 13) While conducting intrinsic dielectric strength on a specimen, its shape should be so prepared that _____.
- the electric stress is high at its centre
 - the electric stress is high at its corner
 - the electric stress is same all along the samples
 - No definite consideration
- 14) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually _____.
- Much shorter than the statistical time lag
 - Much greater than the statistical time lag
 - Equal to the statistical time lag
 - None of these

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following. 16**
- a) Explain estimation and control of electric stresses.
 - b) Explain post breakdown phenomena in gases along with glow arc discharge from neat drawn figure.
 - c) Write a short note on conduction and breakdown in commercial liquids.
 - d) Explain surge voltages and their distribution.
 - e) Explain practical considerations in using gases for insulation purposes.
- Q.3 Attempt any two of the following. 12**
- a) Explain post breakdown phenomena and applications.
 - b) State and derive Paschen's law and equation along with Explanations of V and Pd.
 - c) Write short on breakdown in solid dielectrics due to treeing and tracking

Section – II

- Q.4 Attempt any four of the following. 16**
- a) Explain cockroft - walton multiplier.
 - b) Explain briefly various tests to be carried out on a bushing.
 - c) Explain components of multistage impulse generator.
 - d) Explain resonant transformer its principle and operation.
 - e) Write a short note on grounding of impulse testing laboratories.
- Q.5 Attempt any two of the following. 12**
- a) Explain Generating voltmeter and Capacitance voltage Transformer.
 - b) Discuss various methods of measuring high d.c. and a.c. currents
 - c) Discuss the Test facilities, activity and studies in high voltage laboratories.

Seat No.	
-------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A generating voltmeter is used to measure a.c. voltages if the angular frequency of voltage is _____.
 - a) Half the angular frequency of motor used
 - b) Twice the angular frequency of motor used
 - c) Thrice the angular frequency of the motor used
 - d) None of the above
- 2) Protective resistance to be connected between the sphere gap and the test equipment is required while measuring _____.
 - a) power frequency and higher frequency a.c. voltage
 - b) power frequency and impulse voltage
 - c) higher frequency a.c. voltages and impulse voltage
 - d) all kinds of voltages
- 3) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:

a) Quasi-peak value	b) Peak value
c) Average value	d) All of the above
- 4) High frequency and impulse currents are measured using _____.
 - a) Resistive shunts
 - b) Inductive elements
 - c) Hall and Faraday effect devices
 - d) All of the above
- 5) The accepted value of dielectric strength of transformer oil is _____.

a) 30 kV	b) 30 kV/cm
c) 30 kV/cm for one min.	d) None of the above
- 6) The conventional direction of electric field is _____.
 - a) Positive to negative
 - b) Negative to positive
 - c) No specific direction
 - d) Direction cannot be determined

- 7) The requirement of gases for insulation purpose is _____.
a) High dielectric strength and thermal stability
b) High dielectric strength only
c) High thermal stability only
d) None of the above
- 8) During reconditioning of transformer oil it is economical to use electrostatic filters if the water content of oil is _____.
a) greater than 4 ppm
b) greater than 2 ppm
c) less than 2 ppm
d) electrostatic filters are never used
- 9) The intrinsic breakdown strength of solid dielectrics is about _____.
a) 50 to 100 kV/mm b) 500 to 1000 kV/mm
c) 5 to 10 kV/mm d) 1 to 5 kV/mm
- 10) While conducting intrinsic dielectric strength on a specimen, its shape should be so prepared that _____.
a) the electric stress is high at its centre
b) the electric stress is high at its corner
c) the electric stress is same all along the samples
d) No definite consideration
- 11) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually _____.
a) Much shorter than the statistical time lag
b) Much greater than the statistical time lag
c) Equal to the statistical time lag
d) None of these
- 12) The necessary condition for performing sphere gap test is _____.
a) Should be between 0.7 and 0.8?
b) The length of gap should be smaller than radius of sphere
c) The length of gap should be 4 times greater than radius of sphere
d) An impulse wave of 50000 kV should be applied Wave front time
- 13) Impulse testing of transformers is done using _____.
a) Full wave standard impulse
b) Chopped wave standard impulse
c) Half wave standard impulse
d) only (a) and (b)
- 14) In routine test, the cable is tested by applying an ac voltage _____.
a) 2 times the rated value b) 2.5 times the rated value
c) 3 times the rated value d) 3.5 times the rated value

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following. 16**
- a) Explain estimation and control of electric stresses.
 - b) Explain post breakdown phenomena in gases along with glow arc discharge from neat drawn figure.
 - c) Write a short note on conduction and breakdown in commercial liquids.
 - d) Explain surge voltages and their distribution.
 - e) Explain practical considerations in using gases for insulation purposes.
- Q.3 Attempt any two of the following. 12**
- a) Explain post breakdown phenomena and applications.
 - b) State and derive Paschen's law and equation along with Explanations of V and Pd.
 - c) Write short on breakdown in solid dielectrics due to treeing and tracking

Section – II

- Q.4 Attempt any four of the following. 16**
- a) Explain cockroft - walton multiplier.
 - b) Explain briefly various tests to be carried out on a bushing.
 - c) Explain components of multistage impulse generator.
 - d) Explain resonant transformer its principle and operation.
 - e) Write a short note on grounding of impulse testing laboratories.
- Q.5 Attempt any two of the following. 12**
- a) Explain Generating voltmeter and Capacitance voltage Transformer.
 - b) Discuss various methods of measuring high d.c. and a.c. currents
 - c) Discuss the Test facilities, activity and studies in high voltage laboratories.

Seat No.	
-------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) While conducting intrinsic dielectric strength on a specimen, its shape should be so prepared that _____.
 - a) the electric stress is high at its centre
 - b) the electric stress is high at its corner
 - c) the electric stress is same all along the samples
 - d) No definite consideration
- 2) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually _____.
 - a) Much shorter than the statistical time lag
 - b) Much greater than the statistical time lag
 - c) Equal to the statistical time lag
 - d) None of these
- 3) The necessary condition for performing sphere gap test is _____.
 - a) Should be between 0.7 and 0.8?
 - b) The length of gap should be smaller than radius of sphere
 - c) The length of gap should be 4 times greater than radius of sphere
 - d) An impulse wave of 50000 kV should be applied Wave front time
- 4) Impulse testing of transformers is done using _____.
 - a) Full wave standard impulse
 - b) Chopped wave standard impulse
 - c) Half wave standard impulse
 - d) only (a) and (b)
- 5) In routine test, the cable is tested by applying an ac voltage _____.

a) 2 times the rated value	b) 2.5 times the rated value
c) 3 times the rated value	d) 3.5 times the rated value
- 6) A generating voltmeter is used to measure a.c. voltages if the angular frequency of voltage is _____.
 - a) Half the angular frequency of motor used
 - b) Twice the angular frequency of motor used
 - c) Thrice the angular frequency of the motor used
 - d) None of the above

- 7) Protective resistance to be connected between the sphere gap and the test equipment is required while measuring _____.
- power frequency and higher frequency a.c. voltage
 - power frequency and impulse voltage
 - higher frequency a.c. voltages and impulse voltage
 - all kinds of voltages
- 8) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:
- Quasi-peak value
 - Peak value
 - Average value
 - All of the above
- 9) High frequency and impulse currents are measured using _____.
- Resistive shunts
 - Inductive elements
 - Hall and Faraday effect devices
 - All of the above
- 10) The accepted value of dielectric strength of transformer oil is _____.
- 30 kV
 - 30 kV/cm
 - 30 kV/cm for one min.
 - None of the above
- 11) The conventional direction of electric field is _____.
- Positive to negative
 - Negative to positive
 - No specific direction
 - Direction cannot be determined
- 12) The requirement of gases for insulation purpose is _____.
- High dielectric strength and thermal stability
 - High dielectric strength only
 - High thermal stability only
 - None of the above
- 13) During reconditioning of transformer oil it is economical to use electrostatic filters if the water content of oil is _____.
- greater than 4 ppm
 - greater than 2 ppm
 - less than 2 ppm
 - electrostatic filters are never used
- 14) The intrinsic breakdown strength of solid dielectrics is about _____.
- 50 to 100 kV/mm
 - 500 to 1000 kV/mm
 - 5 to 10 kV/mm
 - 1 to 5 kV/mm

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (BTN07706)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four of the following. 16**
- a) Explain estimation and control of electric stresses.
 - b) Explain post breakdown phenomena in gases along with glow arc discharge from neat drawn figure.
 - c) Write a short note on conduction and breakdown in commercial liquids.
 - d) Explain surge voltages and their distribution.
 - e) Explain practical considerations in using gases for insulation purposes.
- Q.3 Attempt any two of the following. 12**
- a) Explain post breakdown phenomena and applications.
 - b) State and derive Paschen's law and equation along with Explanations of V and Pd.
 - c) Write short on breakdown in solid dielectrics due to treeing and tracking

Section – II

- Q.4 Attempt any four of the following. 16**
- a) Explain cockroft - walton multiplier.
 - b) Explain briefly various tests to be carried out on a bushing.
 - c) Explain components of multistage impulse generator.
 - d) Explain resonant transformer its principle and operation.
 - e) Write a short note on grounding of impulse testing laboratories.
- Q.5 Attempt any two of the following. 12**
- a) Explain Generating voltameter and Capacitance voltage Transformer.
 - b) Discuss various methods of measuring high d.c. and a.c. currents
 - c) Discuss the Test facilities, activity and studies in high voltage laboratories.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Incremental cost is defined as _____.
 - a) The rate of change of fuel cost with active power generation
 - b) The rate of change of running cost with active power generation
 - c) The rate of change of production cost with active power generation
 - d) The rate of change of fixed cost with active power generation
- 2) The units for heat rate are _____.
 - a) Kcal/KWh
 - b) KWh/kcal
 - c) Kcal/hour
 - d) KW
- 3) In dynamic programming method the cost function $F_N(X)$ represents _____.
 - a) Minimum Cost in Rs/hr of N MW by X number of unit
 - b) Minimum Cost in Rs/hr of X MW by N number of unit
 - c) Minimum Cost in Rs/hr of N MW by X^{th} unit
 - d) Minimum Cost in Rs/hr of X MW by N^{th} unit
- 4) The most efficient unit is loaded first then the less efficient unit follow, is called _____.
 - a) Priority ordering
 - b) Dynamic Programming
 - c) Patton's Security
 - d) None of these
- 5) In central AGC of a given control area, the change in frequency _____.
 - a) Volume control error
 - b) Area control error
 - c) Nonlinear control error
 - d) Optimal control error
- 6) Which of the VAR compensators can be used for both heavy and light load conditions?
 - a) SVC
 - b) Shunt Reactor
 - c) Shunt reactor
 - d) Series Capacitor
- 7) A security analysis program uses _____.
 - a) AC load flow
 - b) DC load flow
 - c) Both AC and DCload flow
 - d) None

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four questions.

16

- a) Explain with a mathematical formulation, optimum generation allocation without transmission losses.
b) Explain the different thermal unit constrains.
c) The incremental cost characteristics of two generators delivering 200 MW are as follows:

$$\frac{dF_1}{dP_1} = 0.1P_1 + 20Rs/MWhr$$

$$\frac{dF_2}{dP_2} = 0.2P_2 + 16Rs/MWhr$$

Find Out P1 and P2 for economic operation.

- d) What is mean by spinning reserve?
e) Explain speed governing system with neat sketch.

Q.3 Solve any two questions.

12

- a) What are methods of unit commitment? With a suitable example explain any one method of unit commitment.
b) The fuel input per hour of plant 1 & plant 2 are given as follows:

$$F_1 = 0.2P_1^2 + 40P_1 + 120 \text{ Rs/hr}$$

$$F_2 = 0.25P_2^2 + 30P_2 + 150 \text{ Rs/hr}$$

Determine the economic operating schedule and corresponding cost of generation if the maximum & minimum loading on each unit is 100MW & 25MW. The shared by both units demand is 180MW and transmission losses neglected. If load is equally shared by both units, determine saving obtained by loading the units as per equal incremental production cost.

- c) Explain with illustrative transfer function of the load frequency control of two area system. Draw the block diagram for single area system

Section – II

Q.4 Solve any four questions.

16

- a) Explain system state classification with neat diagram.
b) Explain the different methods of improving voltage stability.
c) Explain specifications of load compensator.
d) Explain the difference between voltage angle and voltage stability.
e) Explain the necessity of reactive power compensation.

Q.5 Solve any two questions.

- a) Write the advantages and dis-advantages of different types of compensating equipment for transmission system.
- b) Explain the necessity of power system security.
- c) Explain effective counter measures to prevent voltage instability & methods of improving voltage stability.

- 10) In dynamic programming method the cost function $F_N(X)$ represents _____.
a) Minimum Cost in Rs/hr of N MW by X number of unit
b) Minimum Cost in Rs/hr of X MW by N number of unit
c) Minimum Cost in Rs/hr of N MW by X^{th} unit
d) Minimum Cost in Rs/hr of X MW by N^{th} unit
- 11) The most efficient unit is loaded first then the less efficient unit follow, is called _____.
a) Priority ordering
b) Dynamic Programming
c) Patton's Security
d) None of these
- 12) In central AGC of a given control area, the change in frequency _____.
a) Volume control error
b) Area control error
c) Nonlinear control error
d) Optimal control error
- 13) Which of the VAR compensators can be used for both heavy and light load conditions?
a) SVC
b) Shunt Reactor
c) Shunt reactor
d) Series Capacitor
- 14) A security analysis program uses _____.
a) AC load flow
b) DC load flow
c) Both AC and DCload flow
d) None

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four questions.

16

- Explain with a mathematical formulation, optimum generation allocation without transmission losses.
- Explain the different thermal unit constrains.
- The incremental cost characteristics of two generators delivering 200 MW are as follows:

$$\frac{dF_1}{dP_1} = 0.1P_1 + 20Rs/MWhr$$

$$\frac{dF_2}{dP_2} = 0.2P_2 + 16Rs/MWhr$$

Find Out P1 and P2 for economic operation.

- What is mean by spinning reserve?
- Explain speed governing system with neat sketch.

Q.3 Solve any two questions.

12

- What are methods of unit commitment? With a suitable example explain any one method of unit commitment.
- The fuel input per hour of plant 1 & plant 2 are given as follows:

$$F_1 = 0.2P_1^2 + 40P_1 + 120 \text{ Rs/hr}$$

$$F_2 = 0.25P_2^2 + 30P_2 + 150 \text{ Rs/hr}$$

Determine the economic operating schedule and corresponding cost of generation if the maximum & minimum loading on each unit is 100MW & 25MW. The shared by both units demand is 180MW and transmission losses neglected. If load is equally shared by both units, determine saving obtained by loading the units as per equal incremental production cost.

- Explain with illustrative transfer function of the load frequency control of two area system. Draw the block diagram for single area system

Section – II

Q.4 Solve any four questions.

16

- Explain system state classification with neat diagram.
- Explain the different methods of improving voltage stability.
- Explain specifications of load compensator.
- Explain the difference between voltage angle and voltage stability.
- Explain the necessity of reactive power compensation.

Q.5 Solve any two questions.

- a) Write the advantages and dis-advantages of different types of compensating equipment for transmission system.
- b) Explain the necessity of power system security.
- c) Explain effective counter measures to prevent voltage instability & methods of improving voltage stability.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Security assessment involves _____.
 - a) System monitoring
 - b) Contingency analysis
 - c) Both of above
 - d) Not divided
- 2) Thermal unit constraint considered in unit commitment problem is _____.
 - a) Minimum up-down time
 - b) Crew constraint
 - c) Start up cost
 - d) All of these
- 3) Power balance equation is _____ constraint.
 - a) Equality
 - b) Inequality
 - c) Security
 - d) Branch transfer capacity
- 4) The penalty factor _____.
 - a) Is always less than 1
 - b) Is always more than 1
 - c) May be more or less than 1
 - d) Is equal to or less than 1
- 5) Incremental cost is defined as _____.
 - a) The rate of change of fuel cost with active power generation
 - b) The rate of change of running cost with active power generation
 - c) The rate of change of production cost with active power generation
 - d) The rate of change of fixed cost with active power generation
- 6) The units for heat rate are _____.
 - a) Kcal/KWh
 - b) KWh/kcal
 - c) Kcal/hour
 - d) KW
- 7) In dynamic programming method the cost function $F_N(X)$ represents _____.
 - a) Minimum Cost in Rs/hr of N MW by X number of unit
 - b) Minimum Cost in Rs/hr of X MW by N number of unit
 - c) Minimum Cost in Rs/hr of N MW by X^{th} unit
 - d) Minimum Cost in Rs/hr of X MW by N^{th} unit
- 8) The most efficient unit is loaded first then the less efficient unit follow, is called _____.
 - a) Priority ordering
 - b) Dynamic Programming
 - c) Patton's Security
 - d) None of these

- 9) In central AGC of a given control area, the change in frequency ____.
- a) Volume control error b) Area control error
c) Nonlinear control error d) Optimal control error
- 10) Which of the VAR compensators can be used for both heavy and light load conditions?
- a) SVC b) Shunt Reactor
c) Shunt reactor d) Series Capacitor
- 11) A security analysis program uses ____.
- a) AC load flow b) DC load flow
c) Both AC and DC load flow d) None
- 12) Power system static security level are ____.
- a) 4 b) 5
c) 6 d) 2
- 13) Voltage stability problem normally occurs ____.
- a) Heavily stressed system b) Medium stressed system
c) Low stressed system d) None of these
- 14) Voltage stability is basically ____.
- a) Generator stability b) Load stability
c) Transformer stability d) None

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four questions.

16

- Explain with a mathematical formulation, optimum generation allocation without transmission losses.
- Explain the different thermal unit constrains.
- The incremental cost characteristics of two generators delivering 200 MW are as follows:

$$\frac{dF_1}{dP_1} = 0.1P_1 + 20Rs/MWhr$$

$$\frac{dF_2}{dP_2} = 0.2P_2 + 16Rs/MWhr$$

Find Out P1 and P2 for economic operation.

- What is mean by spinning reserve?
- Explain speed governing system with neat sketch.

Q.3 Solve any two questions.

12

- What are methods of unit commitment? With a suitable example explain any one method of unit commitment.
- The fuel input per hour of plant 1 & plant 2 are given as follows:

$$F_1 = 0.2P_1^2 + 40P_1 + 120 \text{ Rs/hr}$$

$$F_2 = 0.25P_2^2 + 30P_2 + 150 \text{ Rs/hr}$$

Determine the economic operating schedule and corresponding cost of generation if the maximum & minimum loading on each unit is 100MW & 25MW. The shared by both units demand is 180MW and transmission losses neglected. If load is equally shared by both units, determine saving obtained by loading the units as per equal incremental production cost.

- Explain with illustrative transfer function of the load frequency control of two area system. Draw the block diagram for single area system

Section – II

Q.4 Solve any four questions.

16

- Explain system state classification with neat diagram.
- Explain the different methods of improving voltage stability.
- Explain specifications of load compensator.
- Explain the difference between voltage angle and voltage stability.
- Explain the necessity of reactive power compensation.

Q.5 Solve any two questions.

- a) Write the advantages and dis-advantages of different types of compensating equipment for transmission system.
- b) Explain the necessity of power system security.
- c) Explain effective counter measures to prevent voltage instability & methods of improving voltage stability.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which of the VAR compensators can be used for both heavy and light load conditions?
 - a) SVC
 - b) Shunt Reactor
 - c) Shunt reactor
 - d) Series Capacitor
- 2) A security analysis program uses _____.
 - a) AC load flow
 - b) DC load flow
 - c) Both AC and DC load flow
 - d) None
- 3) Power system static security level are _____.
 - a) 4
 - b) 5
 - c) 6
 - d) 2
- 4) Voltage stability problem normally occurs _____.
 - a) Heavily stressed system
 - b) Medium stressed system
 - c) Low stressed system
 - d) None of these
- 5) Voltage stability is basically _____.
 - a) Generator stability
 - b) Load stability
 - c) Transformer stability
 - d) None
- 6) Security assessment involves _____.
 - a) System monitoring
 - b) Contingency analysis
 - c) Both of above
 - d) Not divided
- 7) Thermal unit constraint considered in unit commitment problem is _____.
 - a) Minimum up-down time
 - b) Crew constraint
 - c) Start up cost
 - d) All of these
- 8) Power balance equation is _____ constraint.
 - a) Equality
 - b) Inequality
 - c) Security
 - d) Branch transfer capacity
- 9) The penalty factor _____.
 - a) Is always less than 1
 - b) Is always more than 1
 - c) May be more or less than 1
 - d) Is equal to or less than 1

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Power System and Operation Control (BTN07707)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four questions.

16

- a) Explain with a mathematical formulation, optimum generation allocation without transmission losses.
 b) Explain the different thermal unit constrains.
 c) The incremental cost characteristics of two generators delivering 200 MW are as follows:

$$\frac{dF_1}{dP_1} = 0.1P_1 + 20Rs/MWhr$$

$$\frac{dF_2}{dP_2} = 0.2P_2 + 16Rs/MWhr$$

Find Out P1 and P2 for economic operation.

- d) What is mean by spinning reserve?
 e) Explain speed governing system with neat sketch.

Q.3 Solve any two questions.

12

- a) What are methods of unit commitment? With a suitable example explain any one method of unit commitment.
 b) The fuel input per hour of plant 1 & plant 2 are given as follows:

$$F_1 = 0.2P_1^2 + 40P_1 + 120 \text{ Rs/hr}$$

$$F_2 = 0.25P_2^2 + 30P_2 + 150 \text{ Rs/hr}$$

Determine the economic operating schedule and corresponding cost of generation if the maximum & minimum loading on each unit is 100MW & 25MW. The shared by both units demand is 180MW and transmission losses neglected. If load is equally shared by both units, determine saving obtained by loading the units as per equal incremental production cost.

- c) Explain with illustrative transfer function of the load frequency control of two area system. Draw the block diagram for single area system

Section – II

Q.4 Solve any four questions.

16

- a) Explain system state classification with neat diagram.
 b) Explain the different methods of improving voltage stability.
 c) Explain specifications of load compensator.
 d) Explain the difference between voltage angle and voltage stability.
 e) Explain the necessity of reactive power compensation.

Q.5 Solve any two questions.

- a) Write the advantages and dis-advantages of different types of compensating equipment for transmission system.
- b) Explain the necessity of power system security.
- c) Explain effective counter measures to prevent voltage instability & methods of improving voltage stability.

- 10) The important function of SCADA is _____.
a) Data Acquisition b) Alarm processing
c) Information Display d) All the above
- 11) The current generation of SCADA uses _____ architecture.
a) Networked b) Monolithic
c) Distributed d) All of the above
- 12) PLCs are designed for use in the control of a wide variety of manufacturing machines and systems _____.
a) Special-Purpose Industrial Computers
b) Personal computers
c) Electromechanical systems
d) All of the above
- 13) Data Collection and Data Transfer is the function of _____.
a) SCADA software b) SCADA hardware
c) a) and b) d) None of the above
- 14) _____ who monitor the SCADA system and perform supervisory control functions for the remote plant.
a) Operator b) MTU
c) RTU d) Communications

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (BTN07708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the definition and basics of PLC.
 - b) What is ladder diagram? How it is different than the normal circuit diagram?
 - c) Explain Solid State Memory.
 - d) Write a short note on PLC input and output model.
 - e) Explain advantages and disadvantages of PLC.
- Q.3 Solve any Two. 12**
- a) Explain input on/off Switching devices & analog input devices.
 - b) Explain the Boolean logic and relay logic and analysis of rungs.
 - c) Explain Power Supplies in PLC also explain selection criteria for PLC.

Section – II

- Q.4 Solve any four. 16**
- a) Explain the definition and basics of SCADA.
 - b) Explain SCADA Configuration and Energy management system.
 - c) Explain the overview of Open Systems Interconnections.
 - d) Explain Profibus Protocol System.
 - e) Explain desirable properties of SCADA System.
- Q.5 Solve any Two. 12**
- a) Write the security implementation of the SCADA protocols.
 - b) Explain seven layers of OSI model and their functions. Compare OSI Model with TCP/IP Model.
 - c) Explain how SCADA system is used in electric power generation.

- 9) The standard form of MMI is _____.
a) Main Machine Interface b) Master Machine Interface
c) Man Machine Interface d) None of the above
- 10) In modular type PLC, the PLC's are classified into _____.
a) Relay output PLC b) Transistor output PLC
c) Triac output PLC d) All of the above
- 11) The programmable logic controllers are used in _____.
a) Manufacturing b) Automation
c) Both a and b d) None of the above
- 12) What are the components that make the programmable logic controller work?
a) Input and output module b) CPU
c) Power supply d) All of the above
- 13) How many levels does complex SCADA system have?
a) One b) Two
c) Three d) Four
- 14) In fixed programmable logic controller _____.
a) Input is fixed b) Output is fixed
c) Both a and b d) None of the above

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (BTN07708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the definition and basics of PLC.
 - b) What is ladder diagram? How it is different than the normal circuit diagram?
 - c) Explain Solid State Memory.
 - d) Write a short note on PLC input and output model.
 - e) Explain advantages and disadvantages of PLC.
- Q.3 Solve any Two. 12**
- a) Explain input on/off Switching devices & analog input devices.
 - b) Explain the Boolean logic and relay logic and analysis of rungs.
 - c) Explain Power Supplies in PLC also explain selection criteria for PLC.

Section – II

- Q.4 Solve any four. 16**
- a) Explain the definition and basics of SCADA.
 - b) Explain SCADA Configuration and Energy management system.
 - c) Explain the overview of Open Systems Interconnections.
 - d) Explain Profibus Protocol System.
 - e) Explain desirable properties of SCADA System.
- Q.5 Solve any Two. 12**
- a) Write the security implementation of the SCADA protocols.
 - b) Explain seven layers of OSI model and their functions. Compare OSI Model with TCP/IP Model.
 - c) Explain how SCADA system is used in electric power generation.

Seat No.	
----------	--

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Programmable Logic Control and SCADA (BTN07708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The current generation of SCADA uses _____ architecture.

a) Networked	b) Monolithic
c) Distributed	d) All of the above

- 2) PLCs are designed for use in the control of a wide variety of manufacturing machines and systems _____.

a) Special-Purpose Industrial Computers
b) Personal computers
c) Electromechanical systems
d) All of the above

- 3) Data Collection and Data Transfer is the function of _____.

a) SCADA software	b) SCADA hardware
c) a) and b)	d) None of the above

- 4) _____ who monitor the SCADA system and perform supervisory control functions for the remote plant.

a) Operator	b) MTU
c) RTU	d) Communications

- 5) The visual programming language is also called as _____.

a) Relay Logic	b) Ladder Logic
c) Control Logic	d) None

- 6) The standard form of MMI is _____.

a) Main Machine Interface	b) Master Machine Interface
c) Man Machine Interface	d) None of the above

- 7) In modular type PLC, the PLC's are classified into _____.

a) Relay output PLC	b) Transistor output PLC
c) Triac output PLC	d) All of the above

- 8) The programmable logic controllers are used in _____.

a) Manufacturing	b) Automation
c) Both a and b	d) None of the above

- 9) What are the components that make the programmable logic controller work?
- a) Input and output module
 - b) CPU
 - c) Power supply
 - d) All of the above
- 10) How many levels does complex SCADA system have?
- a) One
 - b) Two
 - c) Three
 - d) Four
- 11) In fixed programmable logic controller _____.
- a) Input is fixed
 - b) Output is fixed
 - c) Both a and b
 - d) None of the above
- 12) The PLC was invented by _____.
- a) Bills Gates
 - b) Dick Morley
 - c) Bill Landis
 - d) Tod Cunningham
- 13) PLC stands for _____.
- a) Programmable Logo Controller
 - b) Programmed Latching Circuit
 - c) Programmable Logic Controller
 - d) Pneumatic Latching Circuit
- 14) The important function of SCADA is _____.
- a) Data Acquisition
 - b) Alarm processing
 - c) Information Display
 - d) All the above

Seat No.	
-----------------	--

Set	R
------------	----------

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (BTN07708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the definition and basics of PLC.
 - b) What is ladder diagram? How it is different than the normal circuit diagram?
 - c) Explain Solid State Memory.
 - d) Write a short note on PLC input and output model.
 - e) Explain advantages and disadvantages of PLC.
- Q.3 Solve any Two. 12**
- a) Explain input on/off Switching devices & analog input devices.
 - b) Explain the Boolean logic and relay logic and analysis of rungs.
 - c) Explain Power Supplies in PLC also explain selection criteria for PLC.

Section – II

- Q.4 Solve any four. 16**
- a) Explain the definition and basics of SCADA.
 - b) Explain SCADA Configuration and Energy management system.
 - c) Explain the overview of Open Systems Interconnections.
 - d) Explain Profibus Protocol System.
 - e) Explain desirable properties of SCADA System.
- Q.5 Solve any Two. 12**
- a) Write the security implementation of the SCADA protocols.
 - b) Explain seven layers of OSI model and their functions. Compare OSI Model with TCP/IP Model.
 - c) Explain how SCADA system is used in electric power generation.

Seat No.	
-------------	--

Set **S**

**Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Programmable Logic Control and SCADA (BTN07708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) How many levels does complex SCADA system have?
 - a) One
 - b) Two
 - c) Three
 - d) Four
- 2) In fixed programmable logic controller _____.
 - a) Input is fixed
 - b) Output is fixed
 - c) Both a and b
 - d) None of the above
- 3) The PLC was invented by _____.
 - a) Bills Gates
 - b) Dick Morley
 - c) Bill Landis
 - d) Tod Cunningham
- 4) PLC stands for _____.
 - a) Programmable Logo Controller
 - b) Programmed Latching Circuit
 - c) Programmable Logic Controller
 - d) Pneumatic Latching Circuit
- 5) The important function of SCADA is _____.
 - a) Data Acquisition
 - b) Alarm processing
 - c) Information Display
 - d) All the above
- 6) The current generation of SCADA uses _____ architecture.
 - a) Networked
 - b) Monolithic
 - c) Distributed
 - d) All of the above
- 7) PLCs are designed for use in the control of a wide variety of manufacturing machines and systems _____.
 - a) Special-Purpose Industrial Computers
 - b) Personal computers
 - c) Electromechanical systems
 - d) All of the above
- 8) Data Collection and Data Transfer is the function of _____.
 - a) SCADA software
 - b) SCADA hardware
 - c) a) and b)
 - d) None of the above

Seat No.	
-----------------	--

Set	S
------------	----------

Fourth. Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (BTN07708)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four. 16**
- a) Explain the definition and basics of PLC.
 - b) What is ladder diagram? How it is different than the normal circuit diagram?
 - c) Explain Solid State Memory.
 - d) Write a short note on PLC input and output model.
 - e) Explain advantages and disadvantages of PLC.
- Q.3 Solve any Two. 12**
- a) Explain input on/off Switching devices & analog input devices.
 - b) Explain the Boolean logic and relay logic and analysis of rungs.
 - c) Explain Power Supplies in PLC also explain selection criteria for PLC.

Section – II

- Q.4 Solve any four. 16**
- a) Explain the definition and basics of SCADA.
 - b) Explain SCADA Configuration and Energy management system.
 - c) Explain the overview of Open Systems Interconnections.
 - d) Explain Profibus Protocol System.
 - e) Explain desirable properties of SCADA System.
- Q.5 Solve any Two. 12**
- a) Write the security implementation of the SCADA protocols.
 - b) Explain seven layers of OSI model and their functions. Compare OSI Model with TCP/IP Model.
 - c) Explain how SCADA system is used in electric power generation.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicate full marks.
4) Consider data when, if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer**14**

- 1) What is auto association task in neural networks?
 - a) predicting the future inputs
 - b) related to storage & recall task
 - c) find relation between 2 consecutive inputs
 - d) All of the above
- 2) $A \cup (A \cap B) = A$ represents _____

a) Law of excluded middle	b) Law of absorption
c) Demorgans law	d) Law of contradiction
- 3) What is the purpose of the membership function in a fuzzy control system?
 - a) To define the shape and boundaries of fuzzy sets.
 - b) To calculate the centroid of the fuzzy set.
 - c) To determine the output of the control system.
 - d) To establish the rules for fuzzy inference.
- 4) Positive sign of weight indicates?
 - a) excitatory input
 - b) inhibitory input
 - c) can be either excitatory or inhibitory as such
 - d) none of the mentioned
- 5) What is true regarding backpropagation rule?
 - a) it is also called generalized delta rule
 - b) error in output is propagated backwards only to determine weight updates
 - c) there is no feedback of signal at any stage
 - d) all of the mentioned
- 6) Heteroassociative memory is also known as _____
 - a) unidirectional memory
 - b) bidirectional memory
 - c) multidirectional associative memory
 - d) temporal associative memory

- 7) What consist of Boltzmann machine?
a) Fully connected network with both hidden and visible units
b) Asynchronous operation
c) Stochastic update
d) All of the mentioned
- 8) What is the nature of general feedback given in competitive neural networks?
a) Self excitatory
b) Self inhibitory
c) Self excitatory or self inhibitory
d) None of the mentioned
- 9) In Hopfield network with symmetric weights, energy at each state may?
a) increase
b) decrease
c) decrease or remain same
d) decrease or increase
- 10) Which of the following is perceptron?
a) A neural network that contains feedback
b) An auto-associative neural network
c) A double layer auto-associative neural network
d) A single layer feed-forward neural network with pre-processing
- 11) Which of the following is true for neural networks?
a) It has a set of nodes and connections
b) Each node computes its weighted input
c) A node could be in an excited state or non-excited state
d) All of these
- 12) The output at each node is called _____.
a) Node value
b) Weight
c) Neurons
d) Axons
- 13) Fuzzy logic is usually represented as _____.
a) IF-THEN-ELSE rules
b) IF-THEN rules
c) Both IF-THEN-ELSE rules & IF-THEN rules
d) None of the mentioned
- 14) Fuzzy Logic can be implemented in?
a) Hardware
b) Software
c) Both a and b
d) None of above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) Describe Fuzzy set theory.
 - b) Compare & contrast the difference between biological neuron & artificial neural network.
 - c) Differentiate between fuzzy sets and crisp sets.
 - d) State & Prove perceptron convergence theorem.
 - e) Explain in detail any application of neural network.
- Q.3 Attempt the following (Any Two) 12**
- a) Explain the working of a Hopfield network with a neat sketch of its architecture.
 - b) Explain Bidirectional associative memory in detail.
 - c) Explain in detail about Hetero-Associative memory & Auto-Associative memory.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain application and analysis of ART1 & ART2.
 - b) Differentiate fuzzy and neural systems.
 - c) Draw and explain basic architecture of adaptive resonance theory.
 - d) Explain briefly the back propagation technique.
 - e) Explain Neocognitron in neural network in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) What is associative memory? Explain associative memory with example.
 - b) What are counter propagation networks (CPN)? Explain any one application.
 - c) Explain fuzzy system architecture.

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.
 4) Consider data when, if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer**14**

- 1) What is the nature of general feedback given in competitive neural networks?
 - a) Self excitatory
 - b) Self inhibitory
 - c) Self excitatory or self inhibitory
 - d) None of the mentioned
- 2) In Hopfield network with symmetric weights, energy at each state may?
 - a) increase
 - b) decrease
 - c) decrease or remain same
 - d) decrease or increase
- 3) Which of the following is perceptron?
 - a) A neural network that contains feedback
 - b) An auto-associative neural network
 - c) A double layer auto-associative neural network
 - d) A single layer feed-forward neural network with pre-processing
- 4) Which of the following is true for neural networks?
 - a) It has a set of nodes and connections
 - b) Each node computes its weighted input
 - c) A node could be in an excited state or non-excited state
 - d) All of these
- 5) The output at each node is called _____.
 - a) Node value
 - b) Weight
 - c) Neurons
 - d) Axons
- 6) Fuzzy logic is usually represented as _____.
 - a) IF-THEN-ELSE rules
 - b) IF-THEN rules
 - c) Both IF-THEN-ELSE rules & IF-THEN rules
 - d) None of the mentioned
- 7) Fuzzy Logic can be implemented in?
 - a) Hardware
 - b) Software
 - c) Both a and b
 - d) None of above

- 8) What is auto association task in neural networks?
- predicting the future inputs
 - related to storage & recall task
 - find relation between 2 consecutive inputs
 - All of the above
- 9) $A \cup (A \cap B) = A$ represents _____
- Law of excluded middle
 - Law of absorption
 - Demorgans law
 - Law of contradiction
- 10) What is the purpose of the membership function in a fuzzy control system?
- To define the shape and boundaries of fuzzy sets.
 - To calculate the centroid of the fuzzy set.
 - To determine the output of the control system.
 - To establish the rules for fuzzy inference.
- 11) Positive sign of weight indicates?
- excitatory input
 - inhibitory input
 - can be either excitatory or inhibitory as such
 - none of the mentioned
- 12) What is true regarding backpropagation rule?
- it is also called generalized delta rule
 - error in output is propagated backwards only to determine weight updates
 - there is no feedback of signal at any stage
 - all of the mentioned
- 13) Heteroassociative memory is also known as _____
- unidirectional memory
 - bidirectional memory
 - multidirectional associative memory
 - temporal associative memory
- 14) What consist of Boltzmann machine?
- Fully connected network with both hidden and visible units
 - Asynchronous operation
 - Stochastic update
 - All of the mentioned

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) Describe Fuzzy set theory.
 - b) Compare & contrast the difference between biological neuron & artificial neural network.
 - c) Differentiate between fuzzy sets and crisp sets.
 - d) State & Prove perceptron convergence theorem.
 - e) Explain in detail any application of neural network.
- Q.3 Attempt the following (Any Two) 12**
- a) Explain the working of a Hopfield network with a neat sketch of its architecture.
 - b) Explain Bidirectional associative memory in detail.
 - c) Explain in detail about Hetero-Associative memory & Auto-Associative memory.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain application and analysis of ART1 & ART2.
 - b) Differentiate fuzzy and neural systems.
 - c) Draw and explain basic architecture of adaptive resonance theory.
 - d) Explain briefly the back propagation technique.
 - e) Explain Neocognitron in neural network in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) What is associative memory? Explain associative memory with example.
 - b) What are counter propagation networks (CPN)? Explain any one application.
 - c) Explain fuzzy system architecture.

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicate full marks.
 4) Consider data when, if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer

14

- 1) Which of the following is true for neural networks?
 - a) It has a set of nodes and connections
 - b) Each node computes its weighted input
 - c) A node could be in an excited state or non-excited state
 - d) All of these
- 2) The output at each node is called _____.
 - a) Node value
 - b) Weight
 - c) Neurons
 - d) Axons
- 3) Fuzzy logic is usually represented as _____.
 - a) IF-THEN-ELSE rules
 - b) IF-THEN rules
 - c) Both IF-THEN-ELSE rules & IF-THEN rules
 - d) None of the mentioned
- 4) Fuzzy Logic can be implemented in?
 - a) Hardware
 - b) Software
 - c) Both a and b
 - d) None of above
- 5) What is auto association task in neural networks?
 - a) predicting the future inputs
 - b) related to storage & recall task
 - c) find relation between 2 consecutive inputs
 - d) All of the above
- 6) $A \cup (A \cap B) = A$ represents _____.
 - a) Law of excluded middle
 - b) Law of absorption
 - c) Demorgans law
 - d) Law of contradiction
- 7) What is the purpose of the membership function in a fuzzy control system?
 - a) To define the shape and boundaries of fuzzy sets.
 - b) To calculate the centroid of the fuzzy set.
 - c) To determine the output of the control system.
 - d) To establish the rules for fuzzy inference.

- 8) Positive sign of weight indicates?
- a) excitatory input
 - b) inhibitory input
 - c) can be either excitatory or inhibitory as such
 - d) none of the mentioned
- 9) What is true regarding backpropagation rule?
- a) it is also called generalized delta rule
 - b) error in output is propagated backwards only to determine weight updates
 - c) there is no feedback of signal at any stage
 - d) all of the mentioned
- 10) Heteroassociative memory is also known as _____
- a) unidirectional memory
 - b) bidirectional memory
 - c) multidirectional associative memory
 - d) temporal associative memory
- 11) What consist of Boltzmann machine?
- a) Fully connected network with both hidden and visible units
 - b) Asynchronous operation
 - c) Stochastic update
 - d) All of the mentioned
- 12) What is the nature of general feedback given in competitive neural networks?
- a) Self excitatory
 - b) Self inhibitory
 - c) Self excitatory or self inhibitory
 - d) None of the mentioned
- 13) In Hopfield network with symmetric weights, energy at each state may?
- a) increase
 - b) decrease
 - c) decrease or remain same
 - d) decrease or increase
- 14) Which of the following is perceptron?
- a) A neural network that contains feedback
 - b) An auto-associative neural network
 - c) A double layer auto-associative neural network
 - d) A single layer feed-forward neural network with pre-processing

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) Describe Fuzzy set theory.
 - b) Compare & contrast the difference between biological neuron & artificial neural network.
 - c) Differentiate between fuzzy sets and crisp sets.
 - d) State & Prove perceptron convergence theorem.
 - e) Explain in detail any application of neural network.
- Q.3 Attempt the following (Any Two) 12**
- a) Explain the working of a Hopfield network with a neat sketch of its architecture.
 - b) Explain Bidirectional associative memory in detail.
 - c) Explain in detail about Hetero-Associative memory & Auto-Associative memory.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain application and analysis of ART1 & ART2.
 - b) Differentiate fuzzy and neural systems.
 - c) Draw and explain basic architecture of adaptive resonance theory.
 - d) Explain briefly the back propagation technique.
 - e) Explain Neocognitron in neural network in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) What is associative memory? Explain associative memory with example.
 - b) What are counter propagation networks (CPN)? Explain any one application.
 - c) Explain fuzzy system architecture.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicate full marks.
4) Consider data when, if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer**14**

- 1) Heteroassociative memory is also known as _____.
 - a) unidirectional memory
 - b) bidirectional memory
 - c) multidirectional associative memory
 - d) temporal associative memory
- 2) What consist of Boltzmann machine?
 - a) Fully connected network with both hidden and visible units
 - b) Asynchronous operation
 - c) Stochastic update
 - d) All of the mentioned
- 3) What is the nature of general feedback given in competitive neural networks?
 - a) Self excitatory
 - b) Self inhibitory
 - c) Self excitatory or self inhibitory
 - d) None of the mentioned
- 4) In Hopfield network with symmetric weights, energy at each state may?
 - a) increase
 - b) decrease
 - c) decrease or remain same
 - d) decrease or increase
- 5) Which of the following is perceptron?
 - a) A neural network that contains feedback
 - b) An auto-associative neural network
 - c) A double layer auto-associative neural network
 - d) A single layer feed-forward neural network with pre-processing
- 6) Which of the following is true for neural networks?
 - a) It has a set of nodes and connections
 - b) Each node computes its weighted input
 - c) A node could be in an excited state or non-excited state
 - d) All of these
- 7) The output at each node is called _____.
 - a) Node value
 - b) Weight
 - c) Neurons
 - d) Axons

- 8) Fuzzy logic is usually represented as _____.
a) IF-THEN-ELSE rules
b) IF-THEN rules
c) Both IF-THEN-ELSE rules & IF-THEN rules
d) None of the mentioned
- 9) Fuzzy Logic can be implemented in?
a) Hardware
b) Software
c) Both a and b
d) None of above
- 10) What is auto association task in neural networks?
a) predicting the future inputs
b) related to storage & recall task
c) find relation between 2 consecutive inputs
d) All of the above
- 11) $A \cup (A \cap B) = A$ represents _____.
a) Law of excluded middle
b) Law of absorption
c) Demorgans law
d) Law of contradiction
- 12) What is the purpose of the membership function in a fuzzy control system?
a) To define the shape and boundaries of fuzzy sets.
b) To calculate the centroid of the fuzzy set.
c) To determine the output of the control system.
d) To establish the rules for fuzzy inference.
- 13) Positive sign of weight indicates?
a) excitatory input
b) inhibitory input
c) can be either excitatory or inhibitory as such
d) none of the mentioned
- 14) What is true regarding backpropagation rule?
a) it is also called generalized delta rule
b) error in output is propagated backwards only to determine weight updates
c) there is no feedback of signal at any stage
d) all of the mentioned

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Neural Networks & Fuzzy Logic Control (BTN07710)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicates full marks.
3) Consider data whenever necessary.

Section – I

- Q.2 Attempt the following (Any Four) 16**
- a) Describe Fuzzy set theory.
 - b) Compare & contrast the difference between biological neuron & artificial neural network.
 - c) Differentiate between fuzzy sets and crisp sets.
 - d) State & Prove perceptron convergence theorem.
 - e) Explain in detail any application of neural network.
- Q.3 Attempt the following (Any Two) 12**
- a) Explain the working of a Hopfield network with a neat sketch of its architecture.
 - b) Explain Bidirectional associative memory in detail.
 - c) Explain in detail about Hetero-Associative memory & Auto-Associative memory.

Section – II

- Q.4 Attempt the following (Any Four) 16**
- a) Explain application and analysis of ART1 & ART2.
 - b) Differentiate fuzzy and neural systems.
 - c) Draw and explain basic architecture of adaptive resonance theory.
 - d) Explain briefly the back propagation technique.
 - e) Explain Neocognitron in neural network in detail.
- Q.5 Attempt the following (Any Two) 12**
- a) What is associative memory? Explain associative memory with example.
 - b) What are counter propagation networks (CPN)? Explain any one application.
 - c) Explain fuzzy system architecture.

Seat No.	
-----------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) WAMS is _____.
 - a) Wide area Automation and Management System
 - b) Wide Area Measurement System
 - c) Wide Area Management System
 - d) West Automatic Management System
- 2) The main responsibility of Application layer in TCP/IP protocol architecture is _____.
 - a) Routing packets from source to destination across multiple layers
 - b) Allow users to access network resources
 - c) Transmits raw bits as signals between nodes
 - d) Provides reliable and application independent process to process delivery of Messages
- 3) Power quality is the ability of a system _____.
 - a) To operate causing disturbance or damage to loads and components
 - b) To operate without causing disturbance or damage to loads and components
 - c) To lose synchronism of the synchronous machines
 - d) None of the above
- 4) Which statement from the following is not true for OMS?
 - a) Prediction of location of transformer, fused, recloses or breaker that opened upon failure
 - b) Prioritizing restoration efforts and managing resources based upon criteria such as locations of emergency facilities, size of outages, and duration of outages.
 - c) Providing information on extent of outages and number of customers impacted to management, media and regulators.
 - d) It is a networking system using mesh topology to interact with consumers and utilities.

- 5) _____ supply the required data for the smart grid which helps the grid in providing an automated response.
- a) Smart meters
 - b) Sensors
 - c) Actuators
 - d) PLC
- 6) Power quality is a major concern because of the _____.
- a) Sensitivity of digital and modem control equipment to distortion/PQ deterioration
 - b) It does not cause disturbance or damage to loads and components
 - c) Synchronous machines operate in synchronism
 - d) Bus voltages are maintained
- 7) Which of the following is not a property associated with power quality of smart grids?
- a) Self-healing
 - b) Frequency monitoring and control
 - c) Load forecasting
 - d) Asset management
- 8) Fiber optic is an example for _____.
- a) Home Area Networks
 - b) Industry Area Networks (IAN)
 - c) Wide Area Networks (WAN)
 - d) Neighborhood Area Networks
- 9) In smart grid PLM means _____.
- a) Peak Load Management
 - b) Plant Load Management
 - c) Power Leakage Management
 - d) Plant Leakage Management
- 10) The boundaries of the customer domain typically consider which type of meters _____.
- a) Energy services load
 - b) Energy services interface
 - c) Energy services demand
 - d) Wattmeter
- 11) The conversion efficiency of a photo crystalline silicon solar cell is _____.
- a) 12.5 to 15%
 - b) 11 to 14%
 - c) 10 to 13%
 - d) 9 to 12%
- 12) The following Type of inverter may not be suitable for grid connected mode?
- a) Grid feeding converters
 - b) Grid Forming converters
 - c) Grid supporting Converters
 - d) None of the above
- 13) The unit where the meter signals are collected prior to onward transmission to the Central Monitoring Station (CMS) is called _____.
- a) Data Control Unit
 - b) Data Monitoring Unit
 - c) Data Concentrator Unit
 - d) Data Processing Unit
- 14) The concept of national grid is based on maintaining _____.
- a) Demand-supply relationship
 - b) Generation-supply relationship
 - c) Demand-generation relationship
 - d) None of the above

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. 16

- What is the need of Smart Grid? What will be the components of Smart Grid?
- What are smart energy meters? Explain its function in smart grid.
- Explain role of AMI in Smart Grid.
- What is Geographic Information System (GIS)? Explain the components of GIS.
- Explain functions of smart grid components.

Q.3 Solve any Two of the following. 12

- What is the Smart Grid? Overview of how Indian power market is organized.
- Explain EMC and its importance in smart grid.
- Explain how automatic meter reading can make the system Smarter.

Section – II

Q.4 Solve any Four of the following. 16

- Explain the concept of Power Quality and EMC in Smart Grid.
- Describe web Based Power Quality Monitoring.
- What is difference between STATCOM and DSTATCOM?
- Describe the power quality issues of grid connected renewable energy resources.
- What are the Visualization Techniques used in Smart Grid system?

Q.5 Solve any Two of the following. 12

- Explain Voltage source converters and Current source converters.
- What is distribution system state the function of the distribution system? What are the methods of energy management?
- Where are power electronic converters used? Why power electronics technology is important in the grid connected system?

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Fiber optic is an example for _____.
 - a) Home Area Networks
 - b) Industry Area Networks (IAN)
 - c) Wide Area Networks (WAN)
 - d) Neighborhood Area Networks
- 2) In smart grid PLM means _____.
 - a) Peak Load Management
 - b) Plant Load Management
 - c) Power Leakage Management
 - d) Plant Leakage Management
- 3) The boundaries of the customer domain typically consider which type of meters _____.
 - a) Energy services load
 - b) Energy services interface
 - c) Energy services demand
 - d) Wattmeter
- 4) The conversion efficiency of a photo crystalline silicon solar cell is _____.
 - a) 12.5 to 15%
 - b) 11 to 14%
 - c) 10 to 13%
 - d) 9 to 12%
- 5) The following Type of inverter may not be suitable for grid connected mode?
 - a) Grid feeding converters
 - b) Grid Forming converters
 - c) Grid supporting Converters
 - d) None of the above
- 6) The unit where the meter signals are collected prior to onward transmission to the Central Monitoring Station (CMS) is called _____.
 - a) Data Control Unit
 - b) Data Monitoring Unit
 - c) Data Concentrator Unit
 - d) Data Processing Unit
- 7) The concept of national grid is based on maintaining _____.
 - a) Demand-supply relationship
 - b) Generation-supply relationship
 - c) Demand-generation relationship
 - d) None of the above
- 8) WAMS is _____.
 - a) Wide area Automation and Management System
 - b) Wide Area Measurement System
 - c) Wide Area Management System
 - d) West Automatic Management System

- 9) The main responsibility of Application layer in TCP/IP protocol architecture is _____.
- a) Routing packets from source to destination across multiple layers
 - b) Allow users to access network resources
 - c) Transmits raw bits as signals between nodes
 - d) Provides reliable and application independent process to process delivery of Messages
- 10) Power quality is the ability of a system _____.
- a) To operate causing disturbance or damage to loads and components
 - b) To operate without causing disturbance or damage to loads and components
 - c) To lose synchronism of the synchronous machines
 - d) None of the above
- 11) Which statement from the following is not true for OMS?
- a) Prediction of location of transformer, fused, recloses or breaker that opened upon failure
 - b) Prioritizing restoration efforts and managing resources based upon criteria such as locations of emergency facilities, size of outages, and duration of outages.
 - c) Providing information on extent of outages and number of customers impacted to management, media and regulators.
 - d) It is a networking system using mesh topology to interact with consumers and utilities.
- 12) _____ supply the required data for the smart grid which helps the grid in providing an automated response.
- a) Smart meters
 - b) Sensors
 - c) Actuators
 - d) PLC
- 13) Power quality is a major concern because of the _____.
- a) Sensitivity of digital and modem control equipment to distortion/PQ deterioration
 - b) It does not cause disturbance or damage to loads and components
 - c) Synchronous machines operate in synchronism
 - d) Bus voltages are maintained
- 14) Which of the following is not a property associated with power quality of smart grids?
- a) Self-healing
 - b) Frequency monitoring and control
 - c) Load forecasting
 - d) Asset management

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. 16

- What is the need of Smart Grid? What will be the components of Smart Grid?
- What are smart energy meters? Explain its function in smart grid.
- Explain role of AMI in Smart Grid.
- What is Geographic Information System (GIS)? Explain the components of GIS.
- Explain functions of smart grid components.

Q.3 Solve any Two of the following. 12

- What is the Smart Grid? Overview of how Indian power market is organized.
- Explain EMC and its importance in smart grid.
- Explain how automatic meter reading can make the system Smarter.

Section – II

Q.4 Solve any Four of the following. 16

- Explain the concept of Power Quality and EMC in Smart Grid.
- Describe web Based Power Quality Monitoring.
- What is difference between STATCOM and DSTATCOM?
- Describe the power quality issues of grid connected renewable energy resources.
- What are the Visualization Techniques used in Smart Grid system?

Q.5 Solve any Two of the following. 12

- Explain Voltage source converters and Current source converters.
- What is distribution system state the function of the distribution system? What are the methods of energy management?
- Where are power electronic converters used? Why power electronics technology is important in the grid connected system?

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The conversion efficiency of a photo crystalline silicon solar cell is _____.
 - a) 12.5 to 15%
 - b) 11 to 14%
 - c) 10 to 13%
 - d) 9 to 12%
- 2) The following Type of inverter may not be suitable for grid connected mode?
 - a) Grid feeding converters
 - b) Grid Forming converters
 - c) Grid supporting Converters
 - d) None of the above
- 3) The unit where the meter signals are collected prior to onward transmission to the Central Monitoring Station (CMS) is called _____.
 - a) Data Control Unit
 - b) Data Monitoring Unit
 - c) Data Concentrator Unit
 - d) Data Processing Unit
- 4) The concept of national grid is based on maintaining _____.
 - a) Demand-supply relationship
 - b) Generation-supply relationship
 - c) Demand-generation relationship
 - d) None of the above
- 5) WAMS is _____.
 - a) Wide area Automation and Management System
 - b) Wide Area Measurement System
 - c) Wide Area Management System
 - d) West Automatic Management System
- 6) The main responsibility of Application layer in TCP/IP protocol architecture is _____.
 - a) Routing packets from source to destination across multiple layers
 - b) Allow users to access network resources
 - c) Transmits raw bits as signals between nodes
 - d) Provides reliable and application independent process to process delivery of Messages

- 7) Power quality is the ability of a system _____.
a) To operate causing disturbance or damage to loads and components
b) To operate without causing disturbance or damage to loads and components
c) To lose synchronism of the synchronous machines
d) None of the above
- 8) Which statement from the following is not true for OMS?
a) Prediction of location of transformer, fused, recloses or breaker that opened upon failure
b) Prioritizing restoration efforts and managing resources based upon criteria such as locations of emergency facilities, size of outages, and duration of outages.
c) Providing information on extent of outages and number of customers impacted to management, media and regulators.
d) It is a networking system using mesh topology to interact with consumers and utilities.
- 9) _____ supply the required data for the smart grid which helps the grid in providing an automated response.
a) Smart meters
b) Sensors
c) Actuators
d) PLC
- 10) Power quality is a major concern because of the _____.
a) Sensitivity of digital and modem control equipment to distortion/PQ deterioration
b) It does not cause disturbance or damage to loads and components
c) Synchronous machines operate in synchronism
d) Bus voltages are maintained
- 11) Which of the following is not a property associated with power quality of smart grids?
a) Self-healing
b) Frequency monitoring and control
c) Load forecasting
d) Asset management
- 12) Fiber optic is an example for _____.
a) Home Area Networks
b) Industry Area Networks (IAN)
c) Wide Area Networks (WAN)
d) Neighborhood Area Networks
- 13) In smart grid PLM means _____.
a) Peak Load Management
b) Plant Load Management
c) Power Leakage Management
d) Plant Leakage Management
- 14) The boundaries of the customer domain typically consider which type of meters _____.
a) Energy services load
b) Energy services interface
c) Energy services demand
d) Wattmeter

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. 16

- What is the need of Smart Grid? What will be the components of Smart Grid?
- What are smart energy meters? Explain its function in smart grid.
- Explain role of AMI in Smart Grid.
- What is Geographic Information System (GIS)? Explain the components of GIS.
- Explain functions of smart grid components.

Q.3 Solve any Two of the following. 12

- What is the Smart Grid? Overview of how Indian power market is organized.
- Explain EMC and its importance in smart grid.
- Explain how automatic meter reading can make the system Smarter.

Section – II

Q.4 Solve any Four of the following. 16

- Explain the concept of Power Quality and EMC in Smart Grid.
- Describe web Based Power Quality Monitoring.
- What is difference between STATCOM and DSTATCOM?
- Describe the power quality issues of grid connected renewable energy resources.
- What are the Visualization Techniques used in Smart Grid system?

Q.5 Solve any Two of the following. 12

- Explain Voltage source converters and Current source converters.
- What is distribution system state the function of the distribution system? What are the methods of energy management?
- Where are power electronic converters used? Why power electronics technology is important in the grid connected system?

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)**

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Power quality is a major concern because of the _____.
 - a) Sensitivity of digital and modem control equipment to distortion/PQ deterioration
 - b) It does not cause disturbance or damage to loads and components
 - c) Synchronous machines operate in synchronism
 - d) Bus voltages are maintained
- 2) Which of the following is not a property associated with power quality of smart grids?
 - a) Self-healing
 - b) Frequency monitoring and control
 - c) Load forecasting
 - d) Asset management
- 3) Fiber optic is an example for _____.

a) Home Area Networks	b) Industry Area Networks (IAN)
c) Wide Area Networks (WAN)	d) Neighborhood Area Networks
- 4) In smart grid PLM means _____.

a) Peak Load Management	b) Plant Load Management
c) Power Leakage Management	d) Plant Leakage Management
- 5) The boundaries of the customer domain typically consider which type of meters _____.

a) Energy services load	b) Energy services interface
c) Energy services demand	d) Wattmeter
- 6) The conversion efficiency of a photo crystalline silicon solar cell is _____.

a) 12.5 to 15%	b) 11 to 14%
c) 10 to 13%	d) 9 to 12%
- 7) The following Type of inverter may not be suitable for grid connected mode?

a) Grid feeding converters	b) Grid Forming converters
c) Grid supporting Converters	d) None of the above

- 8) The unit where the meter signals are collected prior to onward transmission to the Central Monitoring Station (CMS) is called _____.
a) Data Control Unit b) Data Monitoring Unit
c) Data Concentrator Unit d) Data Processing Unit
- 9) The concept of national grid is based on maintaining _____.
a) Demand-supply relationship
b) Generation-supply relationship
c) Demand-generation relationship
d) None of the above
- 10) WAMS is _____.
a) Wide area Automation and Management System
b) Wide Area Measurement System
c) Wide Area Management System
d) West Automatic Management System
- 11) The main responsibility of Application layer in TCP/IP protocol architecture is _____.
a) Routing packets from source to destination across multiple layers
b) Allow users to access network resources
c) Transmits raw bits as signals between nodes
d) Provides reliable and application independent process to process delivery of Messages
- 12) Power quality is the ability of a system _____.
a) To operate causing disturbance or damage to loads and components
b) To operate without causing disturbance or damage to loads and components
c) To lose synchronism of the synchronous machines
d) None of the above
- 13) Which statement from the following is not true for OMS?
a) Prediction of location of transformer, fused, recloses or breaker that opened upon failure
b) Prioritizing restoration efforts and managing resources based upon criteria such as locations of emergency facilities, size of outages, and duration of outages.
c) Providing information on extent of outages and number of customers impacted to management, media and regulators.
d) It is a networking system using mesh topology to interact with consumers and utilities.
- 14) _____ supply the required data for the smart grid which helps the grid in providing an automated response.
a) Smart meters b) Sensors
c) Actuators d) PLC

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (BTN07721)

Day & Date: Saturday, 18-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. 16

- What is the need of Smart Grid? What will be the components of Smart Grid?
- What are smart energy meters? Explain its function in smart grid.
- Explain role of AMI in Smart Grid.
- What is Geographic Information System (GIS)? Explain the components of GIS.
- Explain functions of smart grid components.

Q.3 Solve any Two of the following. 12

- What is the Smart Grid? Overview of how Indian power market is organized.
- Explain EMC and its importance in smart grid.
- Explain how automatic meter reading can make the system Smarter.

Section – II

Q.4 Solve any Four of the following. 16

- Explain the concept of Power Quality and EMC in Smart Grid.
- Describe web Based Power Quality Monitoring.
- What is difference between STATCOM and DSTATCOM?
- Describe the power quality issues of grid connected renewable energy resources.
- What are the Visualization Techniques used in Smart Grid system?

Q.5 Solve any Two of the following. 12

- Explain Voltage source converters and Current source converters.
- What is distribution system state the function of the distribution system? What are the methods of energy management?
- Where are power electronic converters used? Why power electronics technology is important in the grid connected system?

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Which load having constant power demand.
 - a) Residential load
 - b) Commercial load
 - c) Industrial load
 - d) Other loads
- 2) The correlation technique relates system load to
 - a) Various demographic factors
 - b) Economic factors
 - c) Both a and b
 - d) None of the above
- 3) Factors affecting load forecasting are _____.
 - a) Weather condition
 - b) Time factors
 - c) Special events
 - d) All of these
- 4) For Long term planning time period is _____.
 - a) 0-2 years
 - b) 2-5 years
 - c) 5-10 years
 - d) All above
- 5) The demand side management can be achieved by the technique of
 - a) Time of day pricing and metering
 - b) Multi - utility power exchange model
 - c) Load management
 - d) All of these
- 6) The capital cost of a power plant depends on _____.
 - a) Total installed capacity only
 - b) Total number of units only
 - c) Both Total installed capacity and Total number of units
 - d) None of these
- 7) What is the modern trend in electric power generation?
 - a) To have a large number of small size thermal plants located at different places.
 - b) To have large size thermal plants near load centre.
 - c) To have large size thermal plants located near coal fields.
 - d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Give the classification of load and explain its characteristics in brief.
 - b) Elaborate total forecasting
 - c) Explain Long term Planning in detail.
 - d) What are the Objectives of system planning and Explain factors affecting the system planning.
 - e) Write a short note on generation sources.
- Q.3 Solve any Two** **12**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) Explain generation system model and Cost analysis.
 - c) Describe different methodologies used for load forecasting.

Section – II

- Q.4 Solve any Four** **16**
- a) What are the Objectives of transmission planning?
 - b) Explain the Data required for Composite System Reliability and quality.
 - c) Explain the objectives of generation planning. What are factors affecting this?
 - d) Explain in detail the TOD charges.
 - e) What do you mean by Energy audit?
- Q.5 Solve any Two.** **12**
- a) Explain the concept of demand side management. Discuss the steps involved in DSM planning.
 - b) Explain New algorithms and methods relating to power system planning.
 - c) Discuss the possibilities of energy conservation in various sectors.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The main problem in implanting Distri-bution Automation in metros is _____.
 - a) RTUs
 - b) Communication
 - c) D.A.S
 - d) Control computer
- 2) Size and cost of generating plant installation depends upon
 - a) Average load
 - b) Maximum demand
 - c) (Average load)²
 - d) (Peak load)²
- 3) Need based energy management would include
 - a) plan power generation as per forecast
 - b) monitor matching of need with supply
 - c) identify the needs of various consumers
 - d) all of the above
- 4) RTU is a _____.
 - a) transmitter
 - b) receiver
 - c) trans-receiver
 - d) any of the above
- 5) Which among the following is the pronged approach to energy management?
 - a) Capacity utilization
 - b) Fine turning of equipment
 - c) Technology up gradation
 - d) All of these
- 6) Energy conservation Usually requires
 - a) New investment in more efficient equipments
 - b) Replace old instruments
 - c) Small decrease in convineance or comfort also tolerated
 - d) All above
- 7) Annual operating cost of a generating plant consists of
 - a) Fixed charges
 - b) Semi fixed charges
 - c) Operating or running charges
 - d) All of these

- 8) Which load having constant power demand.
- a) Residential load
 - b) Commercial load
 - c) Industrial load
 - d) Other loads
- 9) The correlation technique relates system load to
- a) Various demographic factors
 - b) Economic factors
 - c) Both a and b
 - d) None of the above
- 10) Factors affecting load forecasting are _____.
- a) Weather condition
 - b) Time factors
 - c) Special events
 - d) All of these
- 11) For Long term planning time period is _____.
- a) 0-2 years
 - b) 2-5 years
 - c) 5-10 years
 - d) All above
- 12) The demand side management can be achieved by the technique of
- a) Time of day pricing and metering
 - b) Multi - utility power exchange model
 - c) Load management
 - d) All of these
- 13) The capital cost of a power plant depends on _____.
- a) Total installed capacity only
 - b) Total number of units only
 - c) Both Total installed capacity and Total number of units
 - d) None of these
- 14) What is the modern trend in electric power generation?
- a) To have a large number of small size thermal plants located at different places.
 - b) To have large size thermal plants near load centre.
 - c) To have large size thermal plants located near coal fields.
 - d) None of the above

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Give the classification of load and explain its characteristics in brief.
 - b) Elaborate total forecasting
 - c) Explain Long term Planning in detail.
 - d) What are the Objectives of system planning and Explain factors affecting the system planning.
 - e) Write a short note on generation sources.
- Q.3 Solve any Two** **12**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) Explain generation system model and Cost analysis.
 - c) Describe different methodologies used for load forecasting.

Section – II

- Q.4 Solve any Four** **16**
- a) What are the Objectives of transmission planning?
 - b) Explain the Data required for Composite System Reliability and quality.
 - c) Explain the objectives of generation planning. What are factors affecting this?
 - d) Explain in detail the TOD charges.
 - e) What do you mean by Energy audit?
- Q.5 Solve any Two.** **12**
- a) Explain the concept of demand side management. Discuss the steps involved in DSM planning.
 - b) Explain New algorithms and methods relating to power system planning.
 - c) Discuss the possibilities of energy conservation in various sectors.

Seat No.	
----------	--

Set **R**

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) RTU is a _____.
 - a) transmitter
 - b) receiver
 - c) trans-receiver
 - d) any of the above
- 2) Which among the following is the pronged approach to energy management?
 - a) Capacity utilization
 - b) Fine turning of equipment
 - c) Technology up gradation
 - d) All of these
- 3) Energy conservation Usually requires
 - a) New investment in more efficient equipments
 - b) Replace old instruments
 - c) Small decrease in convineance or comfort also tolerated
 - d) All above
- 4) Annual operating cost of a generating plant consists of
 - a) Fixed charges
 - b) Semi fixed charges
 - c) Operating or running charges
 - d) All of these
- 5) Which load having constant power demand.
 - a) Residential load
 - b) Commercial load
 - c) Industrial load
 - d) Other loads
- 6) The correlation technique relates system load to
 - a) Various demographic factors
 - b) Economic factors
 - c) Both a and b
 - d) None of the above
- 7) Factors affecting load forecasting are _____.
 - a) Weather condition
 - b) Time factors
 - c) Special events
 - d) All of these
- 8) For Long term planning time period is _____.
 - a) 0-2 years
 - b) 2-5 years
 - c) 5-10 years
 - d) All above

- 9) The demand side management can be achieved by the technique of
- a) Time of day pricing and metering
 - b) Multi - utility power exchange model
 - c) Load management
 - d) All of these
- 10) The capital cost of a power plant depends on _____.
- a) Total installed capacity only
 - b) Total number of units only
 - c) Both Total installed capacity and Total number of units
 - d) None of these
- 11) What is the modern trend in electric power generation?
- a) To have a large number of small size thermal plants located at different places.
 - b) To have large size thermal plants near load centre.
 - c) To have large size thermal plants located near coal fields.
 - d) None of the above
- 12) The main problem in implanting Distri-bution Automation in metros is _____.
- a) RTUs
 - b) Communication
 - c) D.A.S
 - d) Control computer
- 13) Size and cost of generating plant installation depends upon
- a) Average load
 - b) Maximum demand
 - c) (Average load)²
 - d) (Peak load)²
- 14) Need based energy management would include
- a) plan power generation as per forecast
 - b) monitor matching of need with supply
 - c) identify the needs of various consumers
 - d) all of the above

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Give the classification of load and explain its characteristics in brief.
 - b) Elaborate total forecasting
 - c) Explain Long term Planning in detail.
 - d) What are the Objectives of system planning and Explain factors affecting the system planning.
 - e) Write a short note on generation sources.
- Q.3 Solve any Two** **12**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) Explain generation system model and Cost analysis.
 - c) Describe different methodologies used for load forecasting.

Section – II

- Q.4 Solve any Four** **16**
- a) What are the Objectives of transmission planning?
 - b) Explain the Data required for Composite System Reliability and quality.
 - c) Explain the objectives of generation planning. What are factors affecting this?
 - d) Explain in detail the TOD charges.
 - e) What do you mean by Energy audit?
- Q.5 Solve any Two.** **12**
- a) Explain the concept of demand side management. Discuss the steps involved in DSM planning.
 - b) Explain New algorithms and methods relating to power system planning.
 - c) Discuss the possibilities of energy conservation in various sectors.

Seat No.	
----------	--

Set **S**

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The capital cost of a power plant depends on _____.
 - a) Total installed capacity only
 - b) Total number of units only
 - c) Both Total installed capacity and Total number of units
 - d) None of these
- 2) What is the modern trend in electric power generation?
 - a) To have a large number of small size thermal plants located at different places.
 - b) To have large size thermal plants near load centre.
 - c) To have large size thermal plants located near coal fields.
 - d) None of the above
- 3) The main problem in implanting Distri-bution Automation in metros is _____.
 - a) RTUs
 - b) Communication
 - c) D.A.S
 - d) Control computer
- 4) Size and cost of generating plant installation depends upon
 - a) Average load
 - b) Maximum demand
 - c) (Average load)²
 - d) (Peak load)²
- 5) Need based energy management would include
 - a) plan power generation as per forecast
 - b) monitor matching of need with supply
 - c) identify the needs of various consumers
 - d) all of the above
- 6) RTU is a _____.
 - a) transmitter
 - b) receiver
 - c) trans-receiver
 - d) any of the above
- 7) Which among the following is the pronged approach to energy management?
 - a) Capacity utilization
 - b) Fine turning of equipment
 - c) Technology up gradation
 - d) All of these

- 8) Energy conservation Usually requires
- a) New investment in more efficient equipments
 - b) Replace old instruments
 - c) Small decrease in convenience or comfort also tolerated
 - d) All above
- 9) Annual operating cost of a generating plant consists of
- a) Fixed charges
 - b) Semi fixed charges
 - c) Operating or running charges
 - d) All of these
- 10) Which load having constant power demand.
- a) Residential load
 - b) Commercial load
 - c) Industrial load
 - d) Other loads
- 11) The correlation technique relates system load to
- a) Various demographic factors
 - b) Economic factors
 - c) Both a and b
 - d) None of the above
- 12) Factors affecting load forecasting are _____.
- a) Weather condition
 - b) Time factors
 - c) Special events
 - d) All of these
- 13) For Long term planning time period is _____.
- a) 0-2 years
 - b) 2-5 years
 - c) 5-10 years
 - d) All above
- 14) The demand side management can be achieved by the technique of
- a) Time of day pricing and metering
 - b) Multi - utility power exchange model
 - c) Load management
 - d) All of these

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem-I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System Planning (BTN07711)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) Give the classification of load and explain its characteristics in brief.
 - b) Elaborate total forecasting
 - c) Explain Long term Planning in detail.
 - d) What are the Objectives of system planning and Explain factors affecting the system planning.
 - e) Write a short note on generation sources.
- Q.3 Solve any Two** **12**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) Explain generation system model and Cost analysis.
 - c) Describe different methodologies used for load forecasting.

Section – II

- Q.4 Solve any Four** **16**
- a) What are the Objectives of transmission planning?
 - b) Explain the Data required for Composite System Reliability and quality.
 - c) Explain the objectives of generation planning. What are factors affecting this?
 - d) Explain in detail the TOD charges.
 - e) What do you mean by Energy audit?
- Q.5 Solve any Two.** **12**
- a) Explain the concept of demand side management. Discuss the steps involved in DSM planning.
 - b) Explain New algorithms and methods relating to power system planning.
 - c) Discuss the possibilities of energy conservation in various sectors.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The function of steel wire in an ACSR conductor is to
 - a) Compensate for skin effect
 - b) Take care of surges
 - c) Provide additional mechanical strength
 - d) Reduce inductance
- 2) The percentage power loss in 750 kV transmission line is nearly equal to

a) 3.27	b) 4.76
c) 0.78	d) 2.5
- 3) First mode of propagation is called as

a) Line to ground	b) Line to line
c) Homopolar	d) both a & c
- 4) Which type of corona discharge gives interference to radio broadcast

a) Pulse type	b) Pulse less type
c) Glow corona	d) None of these
- 5) The measurement of electrostatic field of an e.h.v. line is done by

a) Dipole	b) Spherical Dipole
c) Parallel plate	d) All of the above
- 6) A sphere-sphere gap is used in HV laboratories for
 - a) Measurement of EHV
 - b) Calibrating other measuring apparatus
 - c) Both a and b
 - d) None of these
- 7) In lossless transmission line theoretically have

a) $r = 1 = 0$	b) $1 = g = 0$
c) $g = c = 0$	d) $r = g = 0$

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

Q.2 Solve Any Four **16**

- a) Explain in detail the sequence inductance and capacitance.
- b) Describe attenuation of travelling waves on transmission line.
- c) Explain in detail merits and demerits of high voltage.
- d) How the audible noise is generated and what are the characteristics?
- e) Derive equation for line energization with trapped charge voltage.
- f) Derive differential equations and solutions for general case in travelling waves.

Q.3 Solve Any Two **12**

- a) A power of 11000 MW is required to be transmitted over a distance of 1000 km. At voltage levels of 400 kV determine:
 - i) Possible no. of circuits required with equal magnitudes for sending and receiving end voltages with 30° phase difference.
 - ii) The currents transmitted; and
 - iii) The total line losses
 Assume the value of $x = 0.327$ ohm/km and $r = 0.031$ ohm/km for 400 kV.
- b) Explain reflection and refraction of travelling waves.
- c) Derive the expression $P_c = \frac{1}{2} KC (V_m^2 - V_0^2)$ for the energy loss from charge-voltage diagram.

Section – II

Q.4 Solve Any Four **16**

- a) Describe the methods for reduction of switching surges on EHV systems.
- b) Explain the causes of over voltages.
- c) Explain sub-synchronous resonance problem and counter measures.
- d) Explain the term power circle diagram and its use.
- e) Explain the conductor-tower, conductor-ground and conductor-conductor clearances for the design of EHV lines.
- f) Explain the factors considered under steady state in design of EHV lines.

Q.5 Solve Any Two **12**

- a) Explain line insulation design based upon transient overvoltages in detail.
- b) Explain the concept of sinusoidal excitation lumped parameter circuit.
- c) Derive the expressions for generalized constants of transmission line.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Reflection coefficient of voltage (K_r) for open circuit is

a) 0	b) +2
c) +1	d) -1
- 2) The most accurate and versatile method of achieving reactive power compensation is by using
 - a) Switched capacitors
 - b) Fixed capacitor with controlled reactor
 - c) Saturable reactor with capacitor bank
 - d) Switched capacitor with controlled reactor
- 3) Switching over-voltages are more hazardous than lightning surges in case of _____.

a) Low voltage systems	b) 11 kV systems
c) Unbalanced systems	d) EHV and UHV systems
- 4) Which of the following method may be used to inject reactive power in the transmission line?

a) Series capacitor	b) Synchronous capacitors
c) Both a and b	d) None of these
- 5) For 100% series compensation, resonance occur at

a) Power frequency	b) 50% of Power frequency
c) 40% of Power frequency	d) None of these
- 6) The conductors of an EHV line is selected on the basis of

a) Current carrying capacity	b) Corona and RI performance
c) Line voltage	d) None of these
- 7) The power loss is important for the design of

a) Generator	b) Motor
c) Feeder	d) Transmission line
- 8) The function of steel wire in an ACSR conductor is to
 - a) Compensate for skin effect
 - b) Take care of surges
 - c) Provide additional mechanical strength
 - d) Reduce inductance

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

Q.2 Solve Any Four **16**

- a) Explain in detail the sequence inductance and capacitance.
- b) Describe attenuation of travelling waves on transmission line.
- c) Explain in detail merits and demerits of high voltage.
- d) How the audible noise is generated and what are the characteristics?
- e) Derive equation for line energization with trapped charge voltage.
- f) Derive differential equations and solutions for general case in travelling waves.

Q.3 Solve Any Two **12**

- a) A power of 11000 MW is required to be transmitted over a distance of 1000 km. At voltage levels of 400 kV determine:
 - i) Possible no. of circuits required with equal magnitudes for sending and receiving end voltages with 30° phase difference.
 - ii) The currents transmitted; and
 - iii) The total line losses
 Assume the value of $x = 0.327$ ohm/km and $r = 0.031$ ohm/km for 400 kV.
- b) Explain reflection and refraction of travelling waves.
- c) Derive the expression $P_c = \frac{1}{2} KC (V_m^2 - V_0^2)$ for the energy loss from charge-voltage diagram.

Section – II

Q.4 Solve Any Four **16**

- a) Describe the methods for reduction of switching surges on EHV systems.
- b) Explain the causes of over voltages.
- c) Explain sub-synchronous resonance problem and counter measures.
- d) Explain the term power circle diagram and its use.
- e) Explain the conductor-tower, conductor-ground and conductor-conductor clearances for the design of EHV lines.
- f) Explain the factors considered under steady state in design of EHV lines.

Q.5 Solve Any Two **12**

- a) Explain line insulation design based upon transient overvoltages in detail.
- b) Explain the concept of sinusoidal excitation lumped parameter circuit.
- c) Derive the expressions for generalized constants of transmission line.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following method may be used to inject reactive power in the transmission line?
 - a) Series capacitor
 - b) Synchronous capacitors
 - c) Both a and b
 - d) None of these
- 2) For 100% series compensation, resonance occur at
 - a) Power frequency
 - b) 50% of Power frequency
 - c) 40% of Power frequency
 - d) None of these
- 3) The conductors of an EHV line is selected on the basis of
 - a) Current carrying capacity
 - b) Corona and RI performance
 - c) Line voltage
 - d) None of these
- 4) The power loss is important for the design of
 - a) Generator
 - b) Motor
 - c) Feeder
 - d) Transmission line
- 5) The function of steel wire in an ACSR conductor is to
 - a) Compensate for skin effect
 - b) Take care of surges
 - c) Provide additional mechanical strength
 - d) Reduce inductance
- 6) The percentage power loss in 750 kV transmission line is nearly equal to
 - a) 3.27
 - b) 4.76
 - c) 0.78
 - d) 2.5
- 7) First mode of propagation is called as
 - a) Line to ground
 - b) Line to line
 - c) Homopolar
 - d) both a & c
- 8) Which type of corona discharge gives interference to radio broadcast
 - a) Pulse type
 - b) Pulse less type
 - c) Glow corona
 - d) None of these
- 9) The measurement of electrostatic field of an e.h.v. line is done by
 - a) Dipole
 - b) Spherical Dipole
 - c) Parallel plate
 - d) All of the above

- 10) A sphere-sphere gap is used in HV laboratories for
- a) Measurement of EHV
 - b) Calibrating other measuring apparatus
 - c) Both a and b
 - d) None of these
- 11) In lossless transmission line theoretically have
- a) $r = 1 = 0$
 - b) $1 = g = 0$
 - c) $g = c = 0$
 - d) $r = g = 0$
- 12) Reflection coefficient of voltage (K_r) for open circuit is
- a) 0
 - b) +2
 - c) +1
 - d) -1
- 13) The most accurate and versatile method of achieving reactive power compensation is by using
- a) Switched capacitors
 - b) Fixed capacitor with controlled reactor
 - c) Saturable reactor with capacitor bank
 - d) Switched capacitor with controlled reactor
- 14) Switching over-voltages are more hazardous than lightning surges in case of _____.
- a) Low voltage systems
 - b) 11 kV systems
 - c) Unbalanced systems
 - d) EHV and UHV systems

Seat No.	
----------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

Q.2 Solve Any Four **16**

- a) Explain in detail the sequence inductance and capacitance.
- b) Describe attenuation of travelling waves on transmission line.
- c) Explain in detail merits and demerits of high voltage.
- d) How the audible noise is generated and what are the characteristics?
- e) Derive equation for line energization with trapped charge voltage.
- f) Derive differential equations and solutions for general case in travelling waves.

Q.3 Solve Any Two **12**

- a) A power of 11000 MW is required to be transmitted over a distance of 1000 km. At voltage levels of 400 kV determine:
 - i) Possible no. of circuits required with equal magnitudes for sending and receiving end voltages with 30° phase difference.
 - ii) The currents transmitted; and
 - iii) The total line losses
 Assume the value of $x = 0.327$ ohm/km and $r = 0.031$ ohm/km for 400 kV.
- b) Explain reflection and refraction of travelling waves.
- c) Derive the expression $P_c = \frac{1}{2} KC (V_m^2 - V_0^2)$ for the energy loss from charge-voltage diagram.

Section – II

Q.4 Solve Any Four **16**

- a) Describe the methods for reduction of switching surges on EHV systems.
- b) Explain the causes of over voltages.
- c) Explain sub-synchronous resonance problem and counter measures.
- d) Explain the term power circle diagram and its use.
- e) Explain the conductor-tower, conductor-ground and conductor-conductor clearances for the design of EHV lines.
- f) Explain the factors considered under steady state in design of EHV lines.

Q.5 Solve Any Two **12**

- a) Explain line insulation design based upon transient overvoltages in detail.
- b) Explain the concept of sinusoidal excitation lumped parameter circuit.
- c) Derive the expressions for generalized constants of transmission line.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) A sphere-sphere gap is used in HV laboratories for
 - a) Measurement of EHV
 - b) Calibrating other measuring apparatus
 - c) Both a and b
 - d) None of these
- 2) In lossless transmission line theoretically have

a) $r = 1 = 0$	b) $1 = g = 0$
c) $g = c = 0$	d) $r = g = 0$
- 3) Reflection coefficient of voltage (K_r) for open circuit is

a) 0	b) +2
c) +1	d) -1
- 4) The most accurate and versatile method of achieving reactive power compensation is by using
 - a) Switched capacitors
 - b) Fixed capacitor with controlled reactor
 - c) Saturable reactor with capacitor bank
 - d) Switched capacitor with controlled reactor
- 5) Switching over-voltages are more hazardous than lightning surges in case of _____.

a) Low voltage systems	b) 11 kV systems
c) Unbalanced systems	d) EHV and UHV systems
- 6) Which of the following method may be used to inject reactive power in the transmission line?

a) Series capacitor	b) Synchronous capacitors
c) Both a and b	d) None of these
- 7) For 100% series compensation, resonance occur at

a) Power frequency	b) 50% of Power frequency
c) 40% of Power frequency	d) None of these

- 8) The conductors of an EHV line is selected on the basis of
a) Current carrying capacity b) Corona and RI performance
c) Line voltage d) None of these
- 9) The power loss is important for the design of
a) Generator b) Motor
c) Feeder d) Transmission line
- 10) The function of steel wire in an ACSR conductor is to
a) Compensate for skin effect
b) Take care of surges
c) Provide additional mechanical strength
d) Reduce inductance
- 11) The percentage power loss in 750 kV transmission line is nearly equal to
a) 3.27 b) 4.76
c) 0.78 d) 2.5
- 12) First mode of propagation is called as
a) Line to ground b) Line to line
c) Homopolar d) both a & c
- 13) Which type of corona discharge gives interference to radio broadcast
a) Pulse type b) Pulse less type
c) Glow corona d) None of these
- 14) The measurement of electrostatic field of an e.h.v. line is done by
a) Dipole b) Spherical Dipole
c) Parallel plate d) All of the above

Seat No.	
----------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (BTN07712)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicates full marks.

Section – I

Q.2 Solve Any Four **16**

- a) Explain in detail the sequence inductance and capacitance.
- b) Describe attenuation of travelling waves on transmission line.
- c) Explain in detail merits and demerits of high voltage.
- d) How the audible noise is generated and what are the characteristics?
- e) Derive equation for line energization with trapped charge voltage.
- f) Derive differential equations and solutions for general case in travelling waves.

Q.3 Solve Any Two **12**

- a) A power of 11000 MW is required to be transmitted over a distance of 1000 km. At voltage levels of 400 kV determine:
 - i) Possible no. of circuits required with equal magnitudes for sending and receiving end voltages with 30° phase difference.
 - ii) The currents transmitted; and
 - iii) The total line losses
 Assume the value of $x = 0.327$ ohm/km and $r = 0.031$ ohm/km for 400 kV.
- b) Explain reflection and refraction of travelling waves.
- c) Derive the expression $P_c = \frac{1}{2} KC (V_m^2 - V_0^2)$ for the energy loss from charge-voltage diagram.

Section – II

Q.4 Solve Any Four **16**

- a) Describe the methods for reduction of switching surges on EHV systems.
- b) Explain the causes of over voltages.
- c) Explain sub-synchronous resonance problem and counter measures.
- d) Explain the term power circle diagram and its use.
- e) Explain the conductor-tower, conductor-ground and conductor-conductor clearances for the design of EHV lines.
- f) Explain the factors considered under steady state in design of EHV lines.

Q.5 Solve Any Two **12**

- a) Explain line insulation design based upon transient overvoltages in detail.
- b) Explain the concept of sinusoidal excitation lumped parameter circuit.
- c) Derive the expressions for generalized constants of transmission line.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The operating speed of a synchronous motor can be changed to new fixed value by _____.
 - a) Changing the load
 - b) Changing the supply voltage
 - c) Changing frequency
 - d) Using brakes
- 2) A four quadrant operation requires _____.
 - a) Two full converters in series
 - b) Two full converters connected in parallel
 - c) Two full converter connected in back to back
 - d) Two semi converters connected in back to back
- 3) For high frequency choppers the device that is preferred is _____.
 - a) Thyristor
 - b) TRIAC
 - c) Transistor
 - d) GTO
- 4) During the starting of a slip ring induction motor using rotor resistance starter, the insertion of resistance in the rotor circuit causes: _____.
 - a) Stator current to increase and torque to decrease
 - b) Stator current to decrease and torque to increase
 - c) Stators current to increase and power factor to decrease
 - d) Power factor to decrease and torque to increase
- 5) Which duty cycle is preferred if the load requires a constant power for short period of time and rest for sufficient longer duration?
 - a) Short Time duty
 - b) Intermittent duty
 - c) Intermittent duty with starting
 - d) Intermittent duty with starting and braking
- 6) The slip of an induction motor normally does not depends on _____.
 - a) rotor speed
 - b) synchronous speed
 - c) both a) and b)
 - d) None of these
- 7) Efficiency by using rotor resistance control in IM is _____.
 - a) High
 - b) Low
 - c) Very high
 - d) Very low

- 8) Speed control by variation of field flux results in _____.
a) Constant power drive b) Constant torque drive
c) Variable power drive d) None of the above
- 9) Full-converter can be used in DC motor for regenerative braking in _____.
a) Constant Operation b) Variable Operation
c) Inversion Operation d) Opposite Operation
- 10) Reluctance motor is a _____.
a) Variable torque motor
b) Low torque variable speed motor
c) Self starting type synchronous motor
d) Low noise, slow speed motor
- 11) Cycloconverter drive has applications in _____.
a) Low power and low speed operations
b) High power and high speed operations
c) Low power and high speed operations
d) High power and low speed operations
- 12) Applications of dc motor is restricted to a few load speed applications because of _____.
a) cost of motor is high
b) mechanical commutation problems
c) maintenance problem
d) all of above
- 13) Stepper motor is popular for _____.
a) Speed control b) Position control
c) Torque control d) Both a and b
- 14) Which of the following method is employed when regenerative braking is necessary?
a) DC Chopper b) Variable Resistor
c) Inverter Rectifier d) Motor-generator

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four. 16**
- a) Describe in details dynamics of Electric Drives.
 - b) Describe in details Characteristics of DC motors.
 - c) Explain the working of phase controlled converter fed DC drives.
 - d) Explain stator voltage control of an induction motor with speed torque characteristics.
 - e) Explain the chopper fed DC separately excited motor in motoring mode.

- Q.3 Solve any Two. 12**
- a) Derive fundamental torque equations and components of load torque.
 - b) Explain the static Kramer method and static schrebius method of speed control of three phase induction motor.
 - c) Describe in details dual-converter control of DC drive.

Section – II

- Q.4 Solve any Four. 16**
- a) Explain Losses in electrical drive system.
 - b) Draw and explain variable frequency control for synchronous motors.
 - c) Explain with circuit diagram converter circuit for switched reluctance motor.
 - d) Describe in details Energy efficient operation of drives.
 - e) Explain drive circuit for stepper motor with neat sketch.

- Q.5 Solve any Two. 12**
- a) Describe in details improvement of power factor and quality of supply.
 - b) With neat sketch explain VSI fed induction motor drive also draw block diagram for closed loop control.
 - c) Draw a neat diagram & explain the Cycloconverter control for synchronous motors.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Speed control by variation of field flux results in _____.
 a) Constant power drive b) Constant torque drive
 c) Variable power drive d) None of the above
- 2) Full-converter can be used in DC motor for regenerative braking in _____.
 a) Constant Operation b) Variable Operation
 c) Inversion Operation d) Opposite Operation
- 3) Reluctance motor is a _____.
 a) Variable torque motor
 b) Low torque variable speed motor
 c) Self starting type synchronous motor
 d) Low noise, slow speed motor
- 4) Cycloconverter drive has applications in _____.
 a) Low power and low speed operations
 b) High power and high speed operations
 c) Low power and high speed operations
 d) High power and low speed operations
- 5) Applications of dc motor is restricted to a few load speed applications because of _____.
 a) cost of motor is high
 b) mechanical commutation problems
 c) maintenance problem
 d) all of above
- 6) Stepper motor is popular for _____.
 a) Speed control b) Position control
 c) Torque control d) Both a and b
- 7) Which of the following method is employed when regenerative braking is necessary?
 a) DC Chopper b) Variable Resistor
 c) Inverter Rectifier d) Motor-generator

- 8) The operating speed of a synchronous motor can be changed to new fixed value by _____.
a) Changing the load
b) Changing the supply voltage
c) Changing frequency
d) Using brakes
- 9) A four quadrant operation requires _____.
a) Two full converters in series
b) Two full converters connected in parallel
c) Two full converter connected in back to back
d) Two semi converters connected in back to back
- 10) For high frequency choppers the device that is preferred is _____.
a) Thyristor
b) TRIAC
c) Transistor
d) GTO
- 11) During the starting of a slip ring induction motor using rotor resistance starter, the insertion of resistance in the rotor circuit causes: _____.
a) Stator current to increase and torque to decrease
b) Stator current to decrease and torque to increase
c) Stators current to increase and power factor to decrease
d) Power factor to decrease and torque to increase
- 12) Which duty cycle is preferred if the load requires a constant power for short period of time and rest for sufficient longer duration?
a) Short Time duty
b) Intermittent duty
c) Intermittent duty with starting
d) Intermittent duty with starting and braking
- 13) The slip of an induction motor normally does not depends on _____.
a) rotor speed
b) synchronous speed
c) both a) and b)
d) None of these
- 14) Efficiency by using rotor resistance control in IM is _____.
a) High
b) Low
c) Very high
d) Very low

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four. 16**
- a) Describe in details dynamics of Electric Drives.
 - b) Describe in details Characteristics of DC motors.
 - c) Explain the working of phase controlled converter fed DC drives.
 - d) Explain stator voltage control of an induction motor with speed torque characteristics.
 - e) Explain the chopper fed DC separately excited motor in motoring mode.
- Q.3 Solve any Two. 12**
- a) Derive fundamental torque equations and components of load torque.
 - b) Explain the static Kramer method and static schrebius method of speed control of three phase induction motor.
 - c) Describe in details dual-converter control of DC drive.

Section – II

- Q.4 Solve any Four. 16**
- a) Explain Losses in electrical drive system.
 - b) Draw and explain variable frequency control for synchronous motors.
 - c) Explain with circuit diagram converter circuit for switched reluctance motor.
 - d) Describe in details Energy efficient operation of drives.
 - e) Explain drive circuit for stepper motor with neat sketch.
- Q.5 Solve any Two. 12**
- a) Describe in details improvement of power factor and quality of supply.
 - b) With neat sketch explain VSI fed induction motor drive also draw block diagram for closed loop control.
 - c) Draw a neat diagram & explain the Cycloconverter control for synchronous motors.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Cycloconverter drive has applications in _____.
 - a) Low power and low speed operations
 - b) High power and high speed operations
 - c) Low power and high speed operations
 - d) High power and low speed operations
- 2) Applications of dc motor is restricted to a few load speed applications because of _____.
 - a) cost of motor is high
 - b) mechanical commutation problems
 - c) maintenance problem
 - d) all of above
- 3) Stepper motor is popular for _____.

a) Speed control	b) Position control
c) Torque control	d) Both a and b
- 4) Which of the following method is employed when regenerative braking is necessary?

a) DC Chopper	b) Variable Resistor
c) Inverter Rectifier	d) Motor-generator
- 5) The operating speed of a synchronous motor can be changed to new fixed value by _____.

a) Changing the load	b) Changing the supply voltage
c) Changing frequency	d) Using brakes
- 6) A four quadrant operation requires _____.
 - a) Two full converters in series
 - b) Two full converters connected in parallel
 - c) Two full converter connected in back to back
 - d) Two semi converters connected in back to back
- 7) For high frequency choppers the device that is preferred is _____.

a) Thyristor	b) TRIAC
c) Transistor	d) GTO

- 8) During the starting of a slip ring induction motor using rotor resistance starter, the insertion of resistance in the rotor circuit causes: _____.
- Stator current to increase and torque to decrease
 - Stator current to decrease and torque to increase
 - Stators current to increase and power factor to decrease
 - Power factor to decrease and torque to increase
- 9) Which duty cycle is preferred if the load requires a constant power for short period of time and rest for sufficient longer duration?
- Short Time duty
 - Intermittent duty
 - Intermittent duty with starting
 - Intermittent duty with starting and braking
- 10) The slip of an induction motor normally does not depends on _____.
- rotor speed
 - synchronous speed
 - both a) and b)
 - None of these
- 11) Efficiency by using rotor resistance control in IM is _____.
- High
 - Low
 - Very high
 - Very low
- 12) Speed control by variation of field flux results in _____.
- Constant power drive
 - Constant torque drive
 - Variable power drive
 - None of the above
- 13) Full-converter can be used in DC motor for regenerative braking in _____.
- Constant Operation
 - Variable Operation
 - Inversion Operation
 - Opposite Operation
- 14) Reluctance motor is a _____.
- Variable torque motor
 - Low torque variable speed motor
 - Self starting type synchronous motor
 - Low noise, slow speed motor

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four. 16**
- a) Describe in details dynamics of Electric Drives.
 - b) Describe in details Characteristics of DC motors.
 - c) Explain the working of phase controlled converter fed DC drives.
 - d) Explain stator voltage control of an induction motor with speed torque characteristics.
 - e) Explain the chopper fed DC separately excited motor in motoring mode.
- Q.3 Solve any Two. 12**
- a) Derive fundamental torque equations and components of load torque.
 - b) Explain the static Kramer method and static schrebius method of speed control of three phase induction motor.
 - c) Describe in details dual-converter control of DC drive.

Section – II

- Q.4 Solve any Four. 16**
- a) Explain Losses in electrical drive system.
 - b) Draw and explain variable frequency control for synchronous motors.
 - c) Explain with circuit diagram converter circuit for switched reluctance motor.
 - d) Describe in details Energy efficient operation of drives.
 - e) Explain drive circuit for stepper motor with neat sketch.
- Q.5 Solve any Two. 12**
- a) Describe in details improvement of power factor and quality of supply.
 - b) With neat sketch explain VSI feed induction motor drive also draw block diagram for closed loop control.
 - c) Draw a neat diagram & explain the Cycloconverter control for synchronous motors.

- 9) Which of the following method is employed when regenerative braking is necessary?
- a) DC Chopper
 - b) Variable Resistor
 - c) Inverter Rectifier
 - d) Motor-generator
- 10) The operating speed of a synchronous motor can be changed to new fixed value by _____.
- a) Changing the load
 - b) Changing the supply voltage
 - c) Changing frequency
 - d) Using brakes
- 11) A four quadrant operation requires _____.
- a) Two full converters in series
 - b) Two full converters connected in parallel
 - c) Two full converter connected in back to back
 - d) Two semi converters connected in back to back
- 12) For high frequency choppers the device that is preferred is _____.
- a) Thyristor
 - b) TRIAC
 - c) Transistor
 - d) GTO
- 13) During the starting of a slip ring induction motor using rotor resistance starter, the insertion of resistance in the rotor circuit causes: _____.
- a) Stator current to increase and torque to decrease
 - b) Stator current to decrease and torque to increase
 - c) Stators current to increase and power factor to decrease
 - d) Power factor to decrease and torque to increase
- 14) Which duty cycle is preferred if the load requires a constant power for short period of time and rest for sufficient longer duration?
- a) Short Time duty
 - b) Intermittent duty
 - c) Intermittent duty with starting
 - d) Intermittent duty with starting and braking

Seat No.	
-----------------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Advanced Electrical Drives (BTN07714)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four.** **16**
- a) Describe in details dynamics of Electric Drives.
 - b) Describe in details Characteristics of DC motors.
 - c) Explain the working of phase controlled converter fed DC drives.
 - d) Explain stator voltage control of an induction motor with speed torque characteristics.
 - e) Explain the chopper fed DC separately excited motor in motoring mode.
- Q.3 Solve any Two.** **12**
- a) Derive fundamental torque equations and components of load torque.
 - b) Explain the static Kramer method and static schrebius method of speed control of three phase induction motor.
 - c) Describe in details dual-converter control of DC drive.

Section – II

- Q.4 Solve any Four.** **16**
- a) Explain Losses in electrical drive system.
 - b) Draw and explain variable frequency control for synchronous motors.
 - c) Explain with circuit diagram converter circuit for switched reluctance motor.
 - d) Describe in details Energy efficient operation of drives.
 - e) Explain drive circuit for stepper motor with neat sketch.
- Q.5 Solve any Two.** **12**
- a) Describe in details improvement of power factor and quality of supply.
 - b) With neat sketch explain VSI fed induction motor drive also draw block diagram for closed loop control.
 - c) Draw a neat diagram & explain the Cycloconverter control for synchronous motors.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) In a natural circulation water heating system, heat is transferred by:
 - a) Conduction
 - b) Convection
 - c) Radiation
 - d) Compression
- 2) What is the purpose of overhangs or shading devices in passive solar architecture?
 - a) To block all sunlight
 - b) To maximize solar gain
 - c) To control and optimize heat gain
 - d) To increase glare inside the building
- 3) What is the primary advantage of using a rack-type dryer over other drying methods?
 - a) Lower energy efficiency
 - b) Faster drying times
 - c) Limited capacity
 - d) Minimal control over the drying process
- 4) Which of the following is NOT a typical component of a standalone solar PV system?
 - a) Inverter
 - b) Charge controller
 - c) Grid connection
 - d) Battery bank
- 5) What is the purpose of an inverter in a solar power system?
 - a) To store excess energy
 - b) To convert DC to AC
 - c) To regulate panel temperature
 - d) To track the sun's movement
- 6) How does scaling affect the efficiency of a water heating system?
 - a) Increases efficiency
 - b) No impact on efficiency
 - c) Decreases efficiency
 - d) Improves heat transfer
- 7) What impact does shading have on the performance of a rooftop solar system?
 - a) No impact
 - b) Improved efficiency
 - c) Reduced efficiency
 - d) Increased battery life

- 8) What is Tri-ethylene Glycol primarily used for?
- a) As a refrigerant to cool the air
 - b) As a fuel to generate heat
 - c) As an absorbent to capture heat from the solar collectors
 - d) As a coolant for the solar panels
- 9) What is the role of the desiccant material?
- a) To heat the incoming air
 - b) To absorb and remove moisture from the incoming air
 - c) To cool the indoor air
 - d) To filter the air
- 10) How does a wick-type solar still function?
- a) By using mirrors to concentrate sunlight
 - b) By absorbing sunlight with photovoltaic cells
 - c) By using a wick to transport water for evaporation
 - d) By converting sunlight into heat directly
- 11) In solar desalination, what process is commonly used to separate freshwater from saltwater?
- a) Reverse osmosis
 - b) Distillation
 - c) Filtration
 - d) Electrolysis
- 12) What is the primary factor that influences the efficiency of a solar drying system?
- a) Wind speed
 - b) Ambient temperature
 - c) Moon phase
 - d) Soil composition
- 13) Which factor is crucial for determining the efficiency of a solar PV rooftop system?
- a) Roof color
 - b) Panel Orientation
 - c) Building height
 - d) Local population density
- 14) In a passive solar building, what is the primary purpose of shading devices?
- a) To block all sunlight from entering the building
 - b) To reduce glare
 - c) To control heat gain and prevent overheating
 - d) To create a dark interior environment

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) Explain
 - i) Freezing
 - ii) Boiling
 - b) Explain the principle of cooling by dehumidification.
 - c) Explain the basics of absorption cooling.
 - d) Discuss with a neat diagram the working of the Trombe wall.
- Q.3 Attempt Any Two. 16**
- a) Explain swimming pool heating with its advantages.
 - b) Explain any two methods of passive cooling of a building.
 - c) Describe the LiBr- H₂O absorption system.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Explain simple solar still.
 - b) Describe the Box type of solar dryer.
 - c) What is net metering in a rooftop system?
 - d) Discuss hot air industrial applications.
- Q.5 Attempt Any Two. 16**
- a) Explain the concept of wick-type solar still and active solar still.
 - b) Explain the type of grain dryer and solar timber drying.
 - c) Describe the concept of solar PV street lighting system with its advantages.

Seat No.	
-------------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) What is Tri-ethylene Glycol primarily used for?
 - a) As a refrigerant to cool the air
 - b) As a fuel to generate heat
 - c) As an absorbent to capture heat from the solar collectors
 - d) As a coolant for the solar panels
- 2) What is the role of the desiccant material?
 - a) To heat the incoming air
 - b) To absorb and remove moisture from the incoming air
 - c) To cool the indoor air
 - d) To filter the air
- 3) How does a wick-type solar still function?
 - a) By using mirrors to concentrate sunlight
 - b) By absorbing sunlight with photovoltaic cells
 - c) By using a wick to transport water for evaporation
 - d) By converting sunlight into heat directly
- 4) In solar desalination, what process is commonly used to separate freshwater from saltwater?

a) Reverse osmosis	b) Distillation
c) Filtration	d) Electrolysis
- 5) What is the primary factor that influences the efficiency of a solar drying system?

a) Wind speed	b) Ambient temperature
c) Moon phase	d) Soil composition
- 6) Which factor is crucial for determining the efficiency of a solar PV rooftop system?

a) Roof color	b) Panel Orientation
c) Building height	d) Local population density
- 7) In a passive solar building, what is the primary purpose of shading devices?
 - a) To block all sunlight from entering the building
 - b) To reduce glare
 - c) To control heat gain and prevent overheating
 - d) To create a dark interior environment

- 8) In a natural circulation water heating system, heat is transferred by:
- a) Conduction
 - b) Convection
 - c) Radiation
 - d) Compression
- 9) What is the purpose of overhangs or shading devices in passive solar architecture?
- a) To block all sunlight
 - b) To maximize solar gain
 - c) To control and optimize heat gain
 - d) To increase glare inside the building
- 10) What is the primary advantage of using a rack-type dryer over other drying methods?
- a) Lower energy efficiency
 - b) Faster drying times
 - c) Limited capacity
 - d) Minimal control over the drying process
- 11) Which of the following is NOT a typical component of a standalone solar PV system?
- a) Inverter
 - b) Charge controller
 - c) Grid connection
 - d) Battery bank
- 12) What is the purpose of an inverter in a solar power system?
- a) To store excess energy
 - b) To convert DC to AC
 - c) To regulate panel temperature
 - d) To track the sun's movement
- 13) How does scaling affect the efficiency of a water heating system?
- a) Increases efficiency
 - b) No impact on efficiency
 - c) Decreases efficiency
 - d) Improves heat transfer
- 14) What impact does shading have on the performance of a rooftop solar system?
- a) No impact
 - b) Improved efficiency
 - c) Reduced efficiency
 - d) Increased battery life

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) Explain
 - i) Freezing
 - ii) Boiling
 - b) Explain the principle of cooling by dehumidification.
 - c) Explain the basics of absorption cooling.
 - d) Discuss with a neat diagram the working of the Trombe wall.
- Q.3 Attempt Any Two. 16**
- a) Explain swimming pool heating with its advantages.
 - b) Explain any two methods of passive cooling of a building.
 - c) Describe the LiBr- H₂O absorption system.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Explain simple solar still.
 - b) Describe the Box type of solar dryer.
 - c) What is net metering in a rooftop system?
 - d) Discuss hot air industrial applications.
- Q.5 Attempt Any Two. 16**
- a) Explain the concept of wick-type solar still and active solar still.
 - b) Explain the type of grain dryer and solar timber drying.
 - c) Describe the concept of solar PV street lighting system with its advantages.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) In solar desalination, what process is commonly used to separate freshwater from saltwater?

a) Reverse osmosis	b) Distillation
c) Filtration	d) Electrolysis
- 2) What is the primary factor that influences the efficiency of a solar drying system?

a) Wind speed	b) Ambient temperature
c) Moon phase	d) Soil composition
- 3) Which factor is crucial for determining the efficiency of a solar PV rooftop system?

a) Roof color	b) Panel Orientation
c) Building height	d) Local population density
- 4) In a passive solar building, what is the primary purpose of shading devices?

a) To block all sunlight from entering the building
b) To reduce glare
c) To control heat gain and prevent overheating
d) To create a dark interior environment
- 5) In a natural circulation water heating system, heat is transferred by:

a) Conduction	b) Convection
c) Radiation	d) Compression
- 6) What is the purpose of overhangs or shading devices in passive solar architecture?

a) To block all sunlight
b) To maximize solar gain
c) To control and optimize heat gain
d) To increase glare inside the building

- 7) What is the primary advantage of using a rack-type dryer over other drying methods?
- a) Lower energy efficiency
 - b) Faster drying times
 - c) Limited capacity
 - d) Minimal control over the drying process
- 8) Which of the following is NOT a typical component of a standalone solar PV system?
- a) Inverter
 - b) Charge controller
 - c) Grid connection
 - d) Battery bank
- 9) What is the purpose of an inverter in a solar power system?
- a) To store excess energy
 - b) To convert DC to AC
 - c) To regulate panel temperature
 - d) To track the sun's movement
- 10) How does scaling affect the efficiency of a water heating system?
- a) Increases efficiency
 - b) No impact on efficiency
 - c) Decreases efficiency
 - d) Improves heat transfer
- 11) What impact does shading have on the performance of a rooftop solar system?
- a) No impact
 - b) Improved efficiency
 - c) Reduced efficiency
 - d) Increased battery life
- 12) What is Tri-ethylene Glycol primarily used for?
- a) As a refrigerant to cool the air
 - b) As a fuel to generate heat
 - c) As an absorbent to capture heat from the solar collectors
 - d) As a coolant for the solar panels
- 13) What is the role of the desiccant material?
- a) To heat the incoming air
 - b) To absorb and remove moisture from the incoming air
 - c) To cool the indoor air
 - d) To filter the air
- 14) How does a wick-type solar still function?
- a) By using mirrors to concentrate sunlight
 - b) By absorbing sunlight with photovoltaic cells
 - c) By using a wick to transport water for evaporation
 - d) By converting sunlight into heat directly

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) Explain
 - i) Freezing
 - ii) Boiling
 - b) Explain the principle of cooling by dehumidification.
 - c) Explain the basics of absorption cooling.
 - d) Discuss with a neat diagram the working of the Trombe wall.
- Q.3 Attempt Any Two. 16**
- a) Explain swimming pool heating with its advantages.
 - b) Explain any two methods of passive cooling of a building.
 - c) Describe the LiBr- H₂O absorption system.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Explain simple solar still.
 - b) Describe the Box type of solar dryer.
 - c) What is net metering in a rooftop system?
 - d) Discuss hot air industrial applications.
- Q.5 Attempt Any Two. 16**
- a) Explain the concept of wick-type solar still and active solar still.
 - b) Explain the type of grain dryer and solar timber drying.
 - c) Describe the concept of solar PV street lighting system with its advantages.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Multiple Choice Questions

14

- 1) How does scaling affect the efficiency of a water heating system?
 - a) Increases efficiency
 - b) No impact on efficiency
 - c) Decreases efficiency
 - d) Improves heat transfer
- 2) What impact does shading have on the performance of a rooftop solar system?
 - a) No impact
 - b) Improved efficiency
 - c) Reduced efficiency
 - d) Increased battery life
- 3) What is Tri-ethylene Glycol primarily used for?
 - a) As a refrigerant to cool the air
 - b) As a fuel to generate heat
 - c) As an absorbent to capture heat from the solar collectors
 - d) As a coolant for the solar panels
- 4) What is the role of the desiccant material?
 - a) To heat the incoming air
 - b) To absorb and remove moisture from the incoming air
 - c) To cool the indoor air
 - d) To filter the air
- 5) How does a wick-type solar still function?
 - a) By using mirrors to concentrate sunlight
 - b) By absorbing sunlight with photovoltaic cells
 - c) By using a wick to transport water for evaporation
 - d) By converting sunlight into heat directly
- 6) In solar desalination, what process is commonly used to separate freshwater from saltwater?
 - a) Reverse osmosis
 - b) Distillation
 - c) Filtration
 - d) Electrolysis
- 7) What is the primary factor that influences the efficiency of a solar drying system?
 - a) Wind speed
 - b) Ambient temperature
 - c) Moon phase
 - d) Soil composition

- 8) Which factor is crucial for determining the efficiency of a solar PV rooftop system?
- a) Roof color
 - b) Panel Orientation
 - c) Building height
 - d) Local population density
- 9) In a passive solar building, what is the primary purpose of shading devices?
- a) To block all sunlight from entering the building
 - b) To reduce glare
 - c) To control heat gain and prevent overheating
 - d) To create a dark interior environment
- 10) In a natural circulation water heating system, heat is transferred by:
- a) Conduction
 - b) Convection
 - c) Radiation
 - d) Compression
- 11) What is the purpose of overhangs or shading devices in passive solar architecture?
- a) To block all sunlight
 - b) To maximize solar gain
 - c) To control and optimize heat gain
 - d) To increase glare inside the building
- 12) What is the primary advantage of using a rack-type dryer over other drying methods?
- a) Lower energy efficiency
 - b) Faster drying times
 - c) Limited capacity
 - d) Minimal control over the drying process
- 13) Which of the following is NOT a typical component of a standalone solar PV system?
- a) Inverter
 - b) Charge controller
 - c) Grid connection
 - d) Battery bank
- 14) What is the purpose of an inverter in a solar power system?
- a) To store excess energy
 - b) To convert DC to AC
 - c) To regulate panel temperature
 - d) To track the sun's movement

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Advanced Applications in Solar Energy Technology (BTN07715)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt Any Three. 12**
- a) Explain
 - i) Freezing
 - ii) Boiling
 - b) Explain the principle of cooling by dehumidification.
 - c) Explain the basics of absorption cooling.
 - d) Discuss with a neat diagram the working of the Trombe wall.
- Q.3 Attempt Any Two. 16**
- a) Explain swimming pool heating with its advantages.
 - b) Explain any two methods of passive cooling of a building.
 - c) Describe the LiBr- H₂O absorption system.

Section – II

- Q.4 Attempt Any Three. 12**
- a) Explain simple solar still.
 - b) Describe the Box type of solar dryer.
 - c) What is net metering in a rooftop system?
 - d) Discuss hot air industrial applications.
- Q.5 Attempt Any Two. 16**
- a) Explain the concept of wick-type solar still and active solar still.
 - b) Explain the type of grain dryer and solar timber drying.
 - c) Describe the concept of solar PV street lighting system with its advantages.

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****Testing & Certification of Electric & Hybrid vehicles (BTN07719)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multi choice Question

14

- 1) What are the main types of vehicle homologation?
 - a) Internal and external homologation
 - b) National and international homologation
 - c) Type approval and individual approval
 - d) Safety and performance homologation
- 2) What is the primary purpose of a demist test in a vehicle?
 - a) To evaluate the vehicle's audio system
 - b) To assess the effectiveness of the demisting system in clearing condensation and fog from the windshield
 - c) To measure the vehicle's fuel efficiency
 - d) To check the tire pressure
- 3) In which country are FMVSS regulations primarily enforced?
 - a) Canada
 - b) Germany
 - c) United States
 - d) Japan
- 4) CMVR regulations are administered by which government authority in India?
 - a) Ministry of Transport and Highways
 - b) Ministry of Road Safety
 - c) Ministry of Environment and Forests
 - d) Ministry of Urban Development
- 5) What is the primary purpose of a Type Approval Scheme?
 - a) To provide insurance coverage for products
 - b) To regulate product pricing
 - c) To certify that products meet specified standards and regulations
 - d) To promote product advertising
- 6) What is the primary goal of CoP?
 - a) Maximizing production output
 - b) Minimizing production costs
 - c) Ensuring consistent product quality and compliance with standards
 - d) Reducing product innovation

- 7) What does a spectrometer measure in testing?
a) Pressure
b) Light intensity and wavelength
c) Sound frequency
d) Electrical resistance
- 8) Which instrument is commonly used to measure the speed of a rotating object, such as a vehicle's wheel?
a) Thermometer
b) Hygrometer
c) Tachometer
d) Manometer
- 9) Which type of test track is designed for testing a vehicle's ability to handle various road surfaces, including gravel, mud, and uneven terrain?
a) High-speed test track
b) Durability test track
c) Off-road test track
d) Handling test track
- 10) What is the primary purpose of Hardware-in-the-Loop (HiL) testing in the context of EVs and HEVs?
a) Testing physical hardware components of vehicles
b) Simulating vehicle behavior in a virtual environment
c) Charging the vehicle's battery
d) Conducting emissions testing
- 11) Which instrument is commonly used to measure tire tread depth accurately?
a) Tire pressure gauge
b) Vernier caliper
c) Tread depth gauge
d) Barometer
- 12) What is the primary purpose of installing a horn in a vehicle?
a) To play music
b) To alert other road users and pedestrians
c) To improve fuel efficiency
d) To control vehicle speed
- 13) Which tell-tale should you test to ensure proper functioning of the vehicle's charging system?
a) Oil pressure warning light
b) Brake system warning light
c) Battery warning light
d) Temperature warning light
- 14) What is the primary function of the accelerator pedal in an M1 vehicle?
a) To engage and disengage the engine
b) To slow down or stop the vehicle
c) To control the vehicle's speed and acceleration
d) To engage the parking brake

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****Testing & Certification of Electric & Hybrid vehicles (BTN07719)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four 16**

- Discuss some reasons, why a temporary cabin is required for drive-away chassis.
- Explain grade ability and its significance.
- Describe brake performance anti-lock braking system test.
- What do you understand by M, N, and O layouts of vehicle classification? Explain.
- Discuss about constant speed fuel consumption testing.
- Explain vehicle homologation process and its types in detail.

Q.3 Solve any Two 12

- Explain the various types of test tracks and common instruments used for testing on test-tracks.
- What do you understand by Tell Tales? Discuss about the common tell tales used in a vehicle.
- What do you understand by interior noise in a vehicle? Discuss some interior noise reduction strategies.

Section – II**Q.4 Solve Any Four 16**

- Describe the horn testing process.
- Explain crash test with dummies.
- Describe the bumper impact test.
- Explain about the safety requirements of traction batteries.
- Explain the defrost test.
- Describe air bag testing process in-detail.

Q.5 Attempt any two of the following: 12

- Describe the test for electric vehicle conductive DC charging system.
- Discuss about the tests conducted on the electric propulsion kit which is intended for vehicle conversion into hybrid electric vehicle.
- Discuss about the various interior fittings of a vehicle and its testing.

Seat No.	
-------------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Testing & Certification of Electric & Hybrid vehicles (BTN07719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multi choice Question

14

- 1) Which instrument is commonly used to measure the speed of a rotating object, such as a vehicle's wheel?
 - a) Thermometer
 - b) Hygrometer
 - c) Tachometer
 - d) Manometer
- 2) Which type of test track is designed for testing a vehicle's ability to handle various road surfaces, including gravel, mud, and uneven terrain?
 - a) High-speed test track
 - b) Durability test track
 - c) Off-road test track
 - d) Handling test track
- 3) What is the primary purpose of Hardware-in-the-Loop (HiL) testing in the context of EVs and HEVs?
 - a) Testing physical hardware components of vehicles
 - b) Simulating vehicle behavior in a virtual environment
 - c) Charging the vehicle's battery
 - d) Conducting emissions testing
- 4) Which instrument is commonly used to measure tire tread depth accurately?
 - a) Tire pressure gauge
 - b) Vernier caliper
 - c) Tread depth gauge
 - d) Barometer
- 5) What is the primary purpose of installing a horn in a vehicle?
 - a) To play music
 - b) To alert other road users and pedestrians
 - c) To improve fuel efficiency
 - d) To control vehicle speed
- 6) Which tell-tale should you test to ensure proper functioning of the vehicle's charging system?
 - a) Oil pressure warning light
 - b) Brake system warning light
 - c) Battery warning light
 - d) Temperature warning light
- 7) What is the primary function of the accelerator pedal in an M1 vehicle?
 - a) To engage and disengage the engine
 - b) To slow down or stop the vehicle
 - c) To control the vehicle's speed and acceleration
 - d) To engage the parking brake

- 8) What are the main types of vehicle homologation?
- a) Internal and external homologation
 - b) National and international homologation
 - c) Type approval and individual approval
 - d) Safety and performance homologation
- 9) What is the primary purpose of a demist test in a vehicle?
- a) To evaluate the vehicle's audio system
 - b) To assess the effectiveness of the demisting system in clearing condensation and fog from the windshield
 - c) To measure the vehicle's fuel efficiency
 - d) To check the tire pressure
- 10) In which country are FMVSS regulations primarily enforced?
- a) Canada
 - b) Germany
 - c) United States
 - d) Japan
- 11) CMVR regulations are administered by which government authority in India?
- a) Ministry of Transport and Highways
 - b) Ministry of Road Safety
 - c) Ministry of Environment and Forests
 - d) Ministry of Urban Development
- 12) What is the primary purpose of a Type Approval Scheme?
- a) To provide insurance coverage for products
 - b) To regulate product pricing
 - c) To certify that products meet specified standards and regulations
 - d) To promote product advertising
- 13) What is the primary goal of CoP?
- a) Maximizing production output
 - b) Minimizing production costs
 - c) Ensuring consistent product quality and compliance with standards
 - d) Reducing product innovation
- 14) What does a spectrometer measure in testing?
- a) Pressure
 - b) Light intensity and wavelength
 - c) Sound frequency
 - d) Electrical resistance

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Testing & Certification of Electric & Hybrid vehicles (BTN07719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four 16

- a) Discuss some reasons, why a temporary cabin is required for drive-away chassis.
- b) Explain grade ability and its significance.
- c) Describe brake performance anti-lock braking system test.
- d) What do you understand by M, N, and O layouts of vehicle classification? Explain.
- e) Discuss about constant speed fuel consumption testing.
- f) Explain vehicle homologation process and its types in detail.

Q.3 Solve any Two 12

- a) Explain the various types of test tracks and common instruments used for testing on test-tracks.
- b) What do you understand by Tell Tales? Discuss about the common tell tales used in a vehicle.
- c) What do you understand by interior noise in a vehicle? Discuss some interior noise reduction strategies.

Section – II

Q.4 Solve Any Four 16

- a) Describe the horn testing process.
- b) Explain crash test with dummies.
- c) Describe the bumper impact test.
- d) Explain about the safety requirements of traction batteries.
- e) Explain the defrost test.
- f) Describe air bag testing process in-detail.

Q.5 Attempt any two of the following: 12

- a) Describe the test for electric vehicle conductive DC charging system.
- b) Discuss about the tests conducted on the electric propulsion kit which is intended for vehicle conversion into hybrid electric vehicle.
- c) Discuss about the various interior fittings of a vehicle and its testing.

Seat No.	
-------------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Testing & Certification of Electric & Hybrid vehicles (BTN07719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multi choice Question

14

- 1) Which instrument is commonly used to measure tire tread depth accurately?
 - a) Tire pressure gauge
 - b) Vernier caliper
 - c) Tread depth gauge
 - d) Barometer
- 2) What is the primary purpose of installing a horn in a vehicle?
 - a) To play music
 - b) To alert other road users and pedestrians
 - c) To improve fuel efficiency
 - d) To control vehicle speed
- 3) Which tell-tale should you test to ensure proper functioning of the vehicle's charging system?
 - a) Oil pressure warning light
 - b) Brake system warning light
 - c) Battery warning light
 - d) Temperature warning light
- 4) What is the primary function of the accelerator pedal in an M1 vehicle?
 - a) To engage and disengage the engine
 - b) To slow down or stop the vehicle
 - c) To control the vehicle's speed and acceleration
 - d) To engage the parking brake
- 5) What are the main types of vehicle homologation?
 - a) Internal and external homologation
 - b) National and international homologation
 - c) Type approval and individual approval
 - d) Safety and performance homologation
- 6) What is the primary purpose of a demist test in a vehicle?
 - a) To evaluate the vehicle's audio system
 - b) To assess the effectiveness of the demisting system in clearing condensation and fog from the windshield
 - c) To measure the vehicle's fuel efficiency
 - d) To check the tire pressure
- 7) In which country are FMVSS regulations primarily enforced?
 - a) Canada
 - b) Germany
 - c) United States
 - d) Japan

- 8) CMVR regulations are administered by which government authority in India?
- a) Ministry of Transport and Highways
 - b) Ministry of Road Safety
 - c) Ministry of Environment and Forests
 - d) Ministry of Urban Development
- 9) What is the primary purpose of a Type Approval Scheme?
- a) To provide insurance coverage for products
 - b) To regulate product pricing
 - c) To certify that products meet specified standards and regulations
 - d) To promote product advertising
- 10) What is the primary goal of CoP?
- a) Maximizing production output
 - b) Minimizing production costs
 - c) Ensuring consistent product quality and compliance with standards
 - d) Reducing product innovation
- 11) What does a spectrometer measure in testing?
- a) Pressure
 - b) Light intensity and wavelength
 - c) Sound frequency
 - d) Electrical resistance
- 12) Which instrument is commonly used to measure the speed of a rotating object, such as a vehicle's wheel?
- a) Thermometer
 - b) Hygrometer
 - c) Tachometer
 - d) Manometer
- 13) Which type of test track is designed for testing a vehicle's ability to handle various road surfaces, including gravel, mud, and uneven terrain?
- a) High-speed test track
 - b) Durability test track
 - c) Off-road test track
 - d) Handling test track
- 14) What is the primary purpose of Hardware-in-the-Loop (HiL) testing in the context of EVs and HEVs?
- a) Testing physical hardware components of vehicles
 - b) Simulating vehicle behavior in a virtual environment
 - c) Charging the vehicle's battery
 - d) Conducting emissions testing

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****Testing & Certification of Electric & Hybrid vehicles (BTN07719)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four 16**

- Discuss some reasons, why a temporary cabin is required for drive-away chassis.
- Explain grade ability and its significance.
- Describe brake performance anti-lock braking system test.
- What do you understand by M, N, and O layouts of vehicle classification? Explain.
- Discuss about constant speed fuel consumption testing.
- Explain vehicle homologation process and its types in detail.

Q.3 Solve any Two 12

- Explain the various types of test tracks and common instruments used for testing on test-tracks.
- What do you understand by Tell Tales? Discuss about the common tell tales used in a vehicle.
- What do you understand by interior noise in a vehicle? Discuss some interior noise reduction strategies.

Section – II**Q.4 Solve Any Four 16**

- Describe the horn testing process.
- Explain crash test with dummies.
- Describe the bumper impact test.
- Explain about the safety requirements of traction batteries.
- Explain the defrost test.
- Describe air bag testing process in-detail.

Q.5 Attempt any two of the following: 12

- Describe the test for electric vehicle conductive DC charging system.
- Discuss about the tests conducted on the electric propulsion kit which is intended for vehicle conversion into hybrid electric vehicle.
- Discuss about the various interior fittings of a vehicle and its testing.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Testing & Certification of Electric & Hybrid vehicles (BTN07719)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Multi choice Question

14

- 1) What is the primary goal of CoP?
 - a) Maximizing production output
 - b) Minimizing production costs
 - c) Ensuring consistent product quality and compliance with standards
 - d) Reducing product innovation
- 2) What does a spectrometer measure in testing?
 - a) Pressure
 - b) Light intensity and wavelength
 - c) Sound frequency
 - d) Electrical resistance
- 3) Which instrument is commonly used to measure the speed of a rotating object, such as a vehicle's wheel?
 - a) Thermometer
 - b) Hygrometer
 - c) Tachometer
 - d) Manometer
- 4) Which type of test track is designed for testing a vehicle's ability to handle various road surfaces, including gravel, mud, and uneven terrain?
 - a) High-speed test track
 - b) Durability test track
 - c) Off-road test track
 - d) Handling test track
- 5) What is the primary purpose of Hardware-in-the-Loop (HiL) testing in the context of EVs and HEVs?
 - a) Testing physical hardware components of vehicles
 - b) Simulating vehicle behavior in a virtual environment
 - c) Charging the vehicle's battery
 - d) Conducting emissions testing
- 6) Which instrument is commonly used to measure tire tread depth accurately?
 - a) Tire pressure gauge
 - b) Vernier caliper
 - c) Tread depth gauge
 - d) Barometer
- 7) What is the primary purpose of installing a horn in a vehicle?
 - a) To play music
 - b) To alert other road users and pedestrians
 - c) To improve fuel efficiency
 - d) To control vehicle speed

- 8) Which tell-tale should you test to ensure proper functioning of the vehicle's charging system?
- a) Oil pressure warning light b) Brake system warning light
c) Battery warning light d) Temperature warning light
- 9) What is the primary function of the accelerator pedal in an M1 vehicle?
- a) To engage and disengage the engine
b) To slow down or stop the vehicle
c) To control the vehicle's speed and acceleration
d) To engage the parking brake
- 10) What are the main types of vehicle homologation?
- a) Internal and external homologation
b) National and international homologation
c) Type approval and individual approval
d) Safety and performance homologation
- 11) What is the primary purpose of a demist test in a vehicle?
- a) To evaluate the vehicle's audio system
b) To assess the effectiveness of the demisting system in clearing condensation and fog from the windshield
c) To measure the vehicle's fuel efficiency
d) To check the tire pressure
- 12) In which country are FMVSS regulations primarily enforced?
- a) Canada b) Germany
c) United States d) Japan
- 13) CMVR regulations are administered by which government authority in India?
- a) Ministry of Transport and Highways
b) Ministry of Road Safety
c) Ministry of Environment and Forests
d) Ministry of Urban Development
- 14) What is the primary purpose of a Type Approval Scheme?
- a) To provide insurance coverage for products
b) To regulate product pricing
c) To certify that products meet specified standards and regulations
d) To promote product advertising

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****Testing & Certification of Electric & Hybrid vehicles (BTN07719)**

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four 16**

- Discuss some reasons, why a temporary cabin is required for drive-away chassis.
- Explain grade ability and its significance.
- Describe brake performance anti-lock braking system test.
- What do you understand by M, N, and O layouts of vehicle classification? Explain.
- Discuss about constant speed fuel consumption testing.
- Explain vehicle homologation process and its types in detail.

Q.3 Solve any Two 12

- Explain the various types of test tracks and common instruments used for testing on test-tracks.
- What do you understand by Tell Tales? Discuss about the common tell tales used in a vehicle.
- What do you understand by interior noise in a vehicle? Discuss some interior noise reduction strategies.

Section – II**Q.4 Solve Any Four 16**

- Describe the horn testing process.
- Explain crash test with dummies.
- Describe the bumper impact test.
- Explain about the safety requirements of traction batteries.
- Explain the defrost test.
- Describe air bag testing process in-detail.

Q.5 Attempt any two of the following: 12

- Describe the test for electric vehicle conductive DC charging system.
- Discuss about the tests conducted on the electric propulsion kit which is intended for vehicle conversion into hybrid electric vehicle.
- Discuss about the various interior fittings of a vehicle and its testing.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) In how many category processes is Artificial Intelligence classified in?
 - a) Depends on the input nature
 - b) 5
 - c) 2
 - d) 3
- 2) Which of the following is the common language for Artificial Intelligence?
 - a) Python
 - b) Java
 - c) Lisp
 - d) PHP
- 3) Among the given options, which is not the required property of Knowledge representation?
 - a) Inferential Efficiency
 - b) Inferential Adequacy
 - c) Representational Verification
 - d) Representational Adequacy
- 4) Which AI technique enables the computers to understand the associations and relationships between objects and events?
 - a) Heuristic Processing
 - b) Cognitive Science
 - c) Relative Symbolism
 - d) Pattern Matching
- 5) Automatic Reasoning tool is used in _____.
 - a) Personal Computers
 - b) Microcomputers
 - c) LISP Machines
 - d) All of the above
- 6) A hybrid Bayesian Network consist _____.
 - a) Discrete variables only
 - b) Discontinuous Variable
 - c) Both Discrete and Continuous variables
 - d) Continuous Variable only
- 7) What is perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) An auto-associative neural network
 - c) A double layer auto-associative neural network
 - d) A neural network that contains feedback

- 8) Which is true for neural networks?
- a) It has set of nodes and connections
 - b) Each node computes its weighted input
 - c) Node could be in excited state or non-excited state
 - d) All of the mentioned
- 9) Why do we need biological neural networks?
- a) To make smart human interactive & user friendly system
 - b) To apply heuristic search methods to find solutions of problem
 - c) To solve tasks like machine vision & natural language processing
 - d) All the Above
- 10) Which of the following is an advantage of using an expert system development tool?
- a) Imposed structure
 - b) Knowledge engineering assistance
 - c) Rapid prototyping
 - d) All of the mentioned
- 11) An expert system is a _____ which has the ability of decision-making like a human expert.
- a) Computer system
 - b) Operating system
 - c) Transaction processing system
 - d) None of these
- 12) The expert systems are incapable of _____.
- a) Producing accurate output for inadequate knowledge base
 - b) Substituting human decision makers
 - c) Both a and b
 - d) None of these
- 13) Improved _____ are key benefits of an Expert System.
- a) Decision quality
 - b) Consistency
 - c) Reliability
 - d) All of the mentioned above
- 14) What is the objective of back propagation algorithm?
- a) To develop learning algorithm for multilayer feed forward neural network
 - b) To develop learning algorithm for single layer feed forward neural network
 - c) To develop learning algorithm for multilayer feed forward neural network, so that network can be trained to capture the mapping implicitly
 - d) None of the mentioned

Seat No.	
-----------------	--

Set **P**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four of the following** **16**
- a) Explain briefly the various problem characteristics.
 - b) What is Artificial Intelligence? Give its applications.
 - c) What Dempster-Shafer Theory? Give Characteristics.
 - d) Difference between Forward and Backward Reasoning in AI.
 - e) What is Feature Selection? What are Different Feature Selection Models explain any one.

- Q.3 Solve any two of the following** **12**
- a) What is knowledge representation and issues in knowledge representation? What are the rules of knowledge representation?
 - b) What is Scripts? What is the Component of Script? Also give advantages and disadvantages of Script.
 - c) Describe in brief the various feature extraction and selection methods in pattern recognition.

Section – II

- Q.4 Solve any four of the following.** **16**
- a) What are the types of Artificial Neural Networks?
 - b) What is Neural Network? Give Applications of Artificial Neural Networks.
 - c) Explain Expert System in Artificial Intelligence.
 - d) Difference between Artificial Neural Network and Biological Neural Network.
 - e) What are the phases of system design in expert system?

- Q.5 Solve any two of the following.** **12**
- a) Explain in detail of single layer and multilayer neural nets in Artificial Neural Network.
 - b) Explain in detail components of an Expert System.
 - c) Compare supervised and unsupervised learning.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) Which is true for neural networks?
 - a) It has set of nodes and connections
 - b) Each node computes its weighted input
 - c) Node could be in excited state or non-excited state
 - d) All of the mentioned
- 2) Why do we need biological neural networks?
 - a) To make smart human interactive & user friendly system
 - b) To apply heuristic search methods to find solutions of problem
 - c) To solve tasks like machine vision & natural language processing
 - d) All the Above
- 3) Which of the following is an advantage of using an expert system development tool?
 - a) Imposed structure
 - b) Knowledge engineering assistance
 - c) Rapid prototyping
 - d) All of the mentioned
- 4) An expert system is a _____ which has the ability of decision-making like a human expert.
 - a) Computer system
 - b) Operating system
 - c) Transaction processing system
 - d) None of these
- 5) The expert systems are incapable of _____.
 - a) Producing accurate output for inadequate knowledge base
 - b) Substituting human decision makers
 - c) Both a and b
 - d) None of these
- 6) Improved _____ are key benefits of an Expert System.

a) Decision quality	b) Consistency
c) Reliability	d) All of the mentioned above

- 7) What is the objective of back propagation algorithm?
- To develop learning algorithm for multilayer feed forward neural network
 - To develop learning algorithm for single layer feed forward neural network
 - To develop learning algorithm for multilayer feed forward neural network, so that network can be trained to capture the mapping implicitly
 - None of the mentioned
- 8) In how many category processes is Artificial Intelligence classified in?
- Depends on the input nature
 - 5
 - 2
 - 3
- 9) Which of the following is the common language for Artificial Intelligence?
- Python
 - Java
 - Lisp
 - PHP
- 10) Among the given options, which is not the required property of Knowledge representation?
- Inferential Efficiency
 - Inferential Adequacy
 - Representational Verification
 - Representational Adequacy
- 11) Which AI technique enables the computers to understand the associations and relationships between objects and events?
- Heuristic Processing
 - Cognitive Science
 - Relative Symbolism
 - Pattern Matching
- 12) Automatic Reasoning tool is used in _____.
- Personal Computers
 - Microcomputers
 - LISP Machines
 - All of the above
- 13) A hybrid Bayesian Network consist _____.
- Discrete variables only
 - Discontinuous Variable
 - Both Discrete and Continuous variables
 - Continuous Variable only
- 14) What is perceptron?
- A single layer feed-forward neural network with pre-processing
 - An auto-associative neural network
 - A double layer auto-associative neural network
 - A neural network that contains feedback

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four of the following** **16**
- a) Explain briefly the various problem characteristics.
 - b) What is Artificial Intelligence? Give its applications.
 - c) What Dempster-Shafer Theory? Give Characteristics.
 - d) Difference between Forward and Backward Reasoning in AI.
 - e) What is Feature Selection? What are Different Feature Selection Models explain any one.

- Q.3 Solve any two of the following** **12**
- a) What is knowledge representation and issues in knowledge representation? What are the rules of knowledge representation?
 - b) What is Scripts? What is the Component of Script? Also give advantages and disadvantages of Script.
 - c) Describe in brief the various feature extraction and selection methods in pattern recognition.

Section – II

- Q.4 Solve any four of the following.** **16**
- a) What are the types of Artificial Neural Networks?
 - b) What is Neural Network? Give Applications of Artificial Neural Networks.
 - c) Explain Expert System in Artificial Intelligence.
 - d) Difference between Artificial Neural Network and Biological Neural Network.
 - e) What are the phases of system design in expert system?

- Q.5 Solve any two of the following.** **12**
- a) Explain in detail of single layer and multilayer neural nets in Artificial Neural Network.
 - b) Explain in detail components of an Expert System.
 - c) Compare supervised and unsupervised learning.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following. 14

- 1) An expert system is a _____ which has the ability of decision-making like a human expert.
 - a) Computer system
 - b) Operating system
 - c) Transaction processing system
 - d) None of these
- 2) The expert systems are incapable of _____.
 - a) Producing accurate output for inadequate knowledge base
 - b) Substituting human decision makers
 - c) Both a and b
 - d) None of these
- 3) Improved _____ are key benefits of an Expert System.

a) Decision quality	b) Consistency
c) Reliability	d) All of the mentioned above
- 4) What is the objective of back propagation algorithm?
 - a) To develop learning algorithm for multilayer feed forward neural network
 - b) To develop learning algorithm for single layer feed forward neural network
 - c) To develop learning algorithm for multilayer feed forward neural network, so that network can be trained to capture the mapping implicitly
 - d) None of the mentioned
- 5) In how many category processes is Artificial Intelligence classified in?

a) Depends on the input nature	b) 5
c) 2	d) 3
- 6) Which of the following is the common language for Artificial Intelligence?

a) Python	b) Java
c) Lisp	d) PHP
- 7) Among the given options, which is not the required property of Knowledge representation?

a) Inferential Efficiency	b) Inferential Adequacy
c) Representational Verification	d) Representational Adequacy

- 8) Which AI technique enables the computers to understand the associations and relationships between objects and events?
- a) Heuristic Processing
 - b) Cognitive Science
 - c) Relative Symbolism
 - d) Pattern Matching
- 9) Automatic Reasoning tool is used in _____.
- a) Personal Computers
 - b) Microcomputers
 - c) LISP Machines
 - d) All of the above
- 10) A hybrid Bayesian Network consist _____.
- a) Discrete variables only
 - b) Discontinuous Variable
 - c) Both Discrete and Continuous variables
 - d) Continuous Variable only
- 11) What is perceptron?
- a) A single layer feed-forward neural network with pre-processing
 - b) An auto-associative neural network
 - c) A double layer auto-associative neural network
 - d) A neural network that contains feedback
- 12) Which is true for neural networks?
- a) It has set of nodes and connections
 - b) Each node computes its weighted input
 - c) Node could be in excited state or non-excited state
 - d) All of the mentioned
- 13) Why do we need biological neural networks?
- a) To make smart human interactive & user friendly system
 - b) To apply heuristic search methods to find solutions of problem
 - c) To solve tasks like machine vision & natural language processing
 - d) All the Above
- 14) Which of the following is an advantage of using an expert system development tool?
- a) Imposed structure
 - b) Knowledge engineering assistance
 - c) Rapid prototyping
 - d) All of the mentioned

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four of the following** **16**
- Explain briefly the various problem characteristics.
 - What is Artificial Intelligence? Give its applications.
 - What Dempster-Shafer Theory? Give Characteristics.
 - Difference between Forward and Backward Reasoning in AI.
 - What is Feature Selection? What are Different Feature Selection Models explain any one.

- Q.3 Solve any two of the following** **12**
- What is knowledge representation and issues in knowledge representation? What are the rules of knowledge representation?
 - What is Scripts? What is the Component of Script? Also give advantages and disadvantages of Script.
 - Describe in brief the various feature extraction and selection methods in pattern recognition.

Section – II

- Q.4 Solve any four of the following.** **16**
- What are the types of Artificial Neural Networks?
 - What is Neural Network? Give Applications of Artificial Neural Networks.
 - Explain Expert System in Artificial Intelligence.
 - Difference between Artificial Neural Network and Biological Neural Network.
 - What are the phases of system design in expert system?

- Q.5 Solve any two of the following.** **12**
- Explain in detail of single layer and multilayer neural nets in Artificial Neural Network.
 - Explain in detail components of an Expert System.
 - Compare supervised and unsupervised learning.

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct option from the following.

14

- 1) A hybrid Bayesian Network consist _____.
 - a) Discrete variables only
 - b) Discontinuous Variable
 - c) Both Discrete and Continuous variables
 - d) Continuous Variable only
- 2) What is perceptron?
 - a) A single layer feed-forward neural network with pre-processing
 - b) An auto-associative neural network
 - c) A double layer auto-associative neural network
 - d) A neural network that contains feedback
- 3) Which is true for neural networks?
 - a) It has set of nodes and connections
 - b) Each node computes its weighted input
 - c) Node could be in excited state or non-excited state
 - d) All of the mentioned
- 4) Why do we need biological neural networks?
 - a) To make smart human interactive & user friendly system
 - b) To apply heuristic search methods to find solutions of problem
 - c) To solve tasks like machine vision & natural language processing
 - d) All the Above
- 5) Which of the following is an advantage of using an expert system development tool?
 - a) Imposed structure
 - b) Knowledge engineering assistance
 - c) Rapid prototyping
 - d) All of the mentioned

- 6) An expert system is a _____ which has the ability of decision-making like a human expert.
- Computer system
 - Operating system
 - Transaction processing system
 - None of these
- 7) The expert systems are incapable of _____.
- Producing accurate output for inadequate knowledge base
 - Substituting human decision makers
 - Both a and b
 - None of these
- 8) Improved _____ are key benefits of an Expert System.
- Decision quality
 - Consistency
 - Reliability
 - All of the mentioned above
- 9) What is the objective of back propagation algorithm?
- To develop learning algorithm for multilayer feed forward neural network
 - To develop learning algorithm for single layer feed forward neural network
 - To develop learning algorithm for multilayer feed forward neural network, so that network can be trained to capture the mapping implicitly
 - None of the mentioned
- 10) In how many category processes is Artificial Intelligence classified in?
- Depends on the input nature
 - 5
 - 2
 - 3
- 11) Which of the following is the common language for Artificial Intelligence?
- Python
 - Java
 - Lisp
 - PHP
- 12) Among the given options, which is not the required property of Knowledge representation?
- Inferential Efficiency
 - Inferential Adequacy
 - Representational Verification
 - Representational Adequacy
- 13) Which AI technique enables the computers to understand the associations and relationships between objects and events?
- Heuristic Processing
 - Cognitive Science
 - Relative Symbolism
 - Pattern Matching
- 14) Automatic Reasoning tool is used in _____.
- Personal Computers
 - Microcomputers
 - LISP Machines
 - All of the above

Seat No.	
-------------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - I) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

AI Application to Power System Management (BTN07717)

Day & Date: Monday, 20-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any four of the following** **16**
- a) Explain briefly the various problem characteristics.
 - b) What is Artificial Intelligence? Give its applications.
 - c) What Dempster-Shafer Theory? Give Characteristics.
 - d) Difference between Forward and Backward Reasoning in AI.
 - e) What is Feature Selection? What are Different Feature Selection Models explain any one.

- Q.3 Solve any two of the following** **12**
- a) What is knowledge representation and issues in knowledge representation? What are the rules of knowledge representation?
 - b) What is Scripts? What is the Component of Script? Also give advantages and disadvantages of Script.
 - c) Describe in brief the various feature extraction and selection methods in pattern recognition.

Section – II

- Q.4 Solve any four of the following.** **16**
- a) What are the types of Artificial Neural Networks?
 - b) What is Neural Network? Give Applications of Artificial Neural Networks.
 - c) Explain Expert System in Artificial Intelligence.
 - d) Difference between Artificial Neural Network and Biological Neural Network.
 - e) What are the phases of system design in expert system?

- Q.5 Solve any two of the following.** **12**
- a) Explain in detail of single layer and multilayer neural nets in Artificial Neural Network.
 - b) Explain in detail components of an Expert System.
 - c) Compare supervised and unsupervised learning.

Seat No.	
-----------------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Industrial Drives Control (197045701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

Q.2 Answer the following (Any four) 16

- Draw the block diagram of electrical drive system and explain.
- Draw and explain single phase half-controlled rectifier fed separately excited D.C. motor.
- Write the classification of drives with examples.
- Explain regenerative braking in separately excited dc motor also draw speed torque characteristics.
- Explain the chopper fed DC separately excited motor in motoring mode.

Q.3 Answer the following (Any Two) 12

- Explain the closed loop speed control of Multimotor drives.
- A 220 V, 1500 rpm, 10A separately excited dc motor is fed from a 1 phase fully controlled rectifier with an ac source voltage of 230V, 50Hz, $R_a=2 \Omega$. conduction can be assumed to be continuous, calculate firing for
 - Half the rated motor torque at 500 rpm
 - rated motor torque at (-1000) rpm
- A 230 V, 960 rpm and 200 A separately excited dc motor has an armature resistance of 0.02Ω . The motor is operated in dynamic braking with chopper control. The braking resistance has value of 2Ω .
 - Calculate duty ratio of chopper for motor speed of 600 rpm & braking torque equal to twice rated value.
 - What will be motor speed for duty ratio of 0.6 & motor torque equal to twice its rated value.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain stator voltage control of an induction motor with speed torque characteristics.
- Explain with circuit diagram converter circuit for switched reluctance motor.
- Explain the static Schrebius method of speed control of three phase induction motor.
- With neat sketch explain VSI feed induction motor drive.
- Explain the operation of Chopper controlled rotor resistance control drive.

Q.5 Answer the following (Any Two)

- a) What are the different types of stepper motors are there? Explain their operation.
- b) A 400 V, star connected, 3 phase, 6 pole, 50 Hz induction motor has following parameter referred to stator $R_s = R_r' = 1$ ohm, $X_s = X_r' = 2$ ohm, for regenerative braking operation of motor, Find
- Maximum torque it can hold and range for safe operation
 - Speed at which it will hold load with torque 100 N-m
- c) A 2.8 kw, 400v, 50Hz, 4 pole, 1370 rpm delta connected squirrel cage induction motor has following parameter referred to stator $R_s = 2$ ohm, $R_r' = 5$ ohm, $X_s = X_r' = 5$ ohm, $X_m = 80$ ohm motor speed is controlled by stator voltage control. When driving a fan load it run at a speed rated speed at a rated voltage calculate
- Motor terminal voltage, current and torque at 1200 rpm.
 - Motor speed, current and torque for terminal voltage of 300v.

Seat No.	
-------------	--

Set **Q**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Industrial Drives Control (197045701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

Q.2 Answer the following (Any four) 16

- a) Draw the block diagram of electrical drive system and explain.
- b) Draw and explain single phase half-controlled rectifier fed separately excited D.C. motor.
- c) Write the classification of drives with examples.
- d) Explain regenerative braking in separately excited dc motor also draw speed torque characteristics.
- e) Explain the chopper fed DC separately excited motor in motoring mode.

Q.3 Answer the following (Any Two) 12

- a) Explain the closed loop speed control of Multimotor drives.
- b) A 220 V, 1500 rpm, 10A separately excited dc motor is fed from a 1 phase fully controlled rectifier with an ac source voltage of 230V, 50Hz, $R_a=2 \Omega$. conduction can be assumed to be continuous, calculate firing for
 - i) Half the rated motor torque at 500 rpm
 - ii) rated motor torque at (-1000) rpm
- c) A 230 V, 960 rpm and 200 A separately excited dc motor has an armature resistance of 0.02Ω . The motor is operated in dynamic braking with chopper control. The braking resistance has value of 2Ω .
 - i) Calculate duty ratio of chopper for motor speed of 600 rpm & braking torque equal to twice rated value.
 - ii) What will be motor speed for duty ratio of 0.6 & motor torque equal to twice its rated value.

Section – II

Q.4 Answer the following (Any Four) 16

- a) Explain stator voltage control of an induction motor with speed torque characteristics.
- b) Explain with circuit diagram converter circuit for switched reluctance motor.
- c) Explain the static Schrebius method of speed control of three phase induction motor.
- d) With neat sketch explain VSI feed induction motor drive.
- e) Explain the operation of Chopper controlled rotor resistance control drive.

Q.5 Answer the following (Any Two)

- a) What are the different types of stepper motors are there? Explain their operation.
- b) A 400 V, star connected, 3 phase, 6 pole, 50 Hz induction motor has following parameter referred to stator $R_s = R_r' = 1$ ohm, $X_s = X_r' = 2$ ohm, for regenerative braking operation of motor, Find
- Maximum torque it can hold and range for safe operation
 - Speed at which it will hold load with torque 100 N-m
- c) A 2.8 kw, 400v, 50Hz, 4 pole, 1370 rpm delta connected squirrel cage induction motor has following parameter referred to stator $R_s = 2$ ohm, $R_r' = 5$ ohm, $X_s = X_r' = 5$ ohm, $X_m = 80$ ohm motor speed is controlled by stator voltage control. When driving a fan load it run at a speed rated speed at a rated voltage calculate
- Motor terminal voltage, current and torque at 1200 rpm.
 - Motor speed, current and torque for terminal voltage of 300v.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Industrial Drives Control (197045701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct options.

14

- 1) Cycloconverter drive has applications in _____.
 - a) Low power and low speed operations
 - b) High power and high speed operations
 - c) Low power and high speed operations
 - d) High power and low speed operations
- 2) Which of the following method is employed when regenerative braking is necessary?
 - a) DC Chopper
 - b) Variable Resistor
 - c) Inverter Rectifier
 - d) Motor-generator
- 3) A synchronous motor is a useful industrial machine due to its property of _____.
 - a) Improving the power factor
 - b) Speed is constant
 - c) Can always be adjusted to operate at unity power factor
 - d) All of the above
- 4) Stepper motor is popular for _____.
 - a) Speed control
 - b) Position control
 - c) Torque control
 - d) Both a and b
- 5) For high frequency choppers the device that is preferred is _____.
 - a) Thyristor
 - b) TRIAC
 - c) Transistor
 - d) GTO
- 6) When quick speed reversal is a consideration, the motor preferred is _____.
 - a) Synchronous Motor
 - b) Squirrel cage Induction Motor
 - c) Wound Rotor induction motor
 - d) DC Motor
- 7) The operating speed of a synchronous motor can be changed to new fixed value by _____.
 - a) Changing the load
 - b) Changing the supply voltage
 - c) Changing frequency
 - d) Using brakes

- 8) Which duty cycle is preferred if the load requires a constant power for short period of time and rest for sufficient longer duration?
- a) Short Time duty
 - b) Intermittent duty
 - c) Intermittent duty with starting
 - d) Intermittent duty with starting and braking
- 9) The equilibrium speed of a motor load system is obtained _____
- a) When motor torque equals the load torque
 - b) When motor torque is less than the load torque
 - c) When motor torque is more than the load torque
 - d) None of these
- 10) The slip of an induction motor normally does not depend on _____
- a) Rotor speed
 - b) Synchronous speed
 - c) Shaft torque
 - d) Core loss component
- 11) Speed control by variation of field flux results in _____.
- a) Constant power drive
 - b) Constant torque drive
 - c) Variable power drive
 - d) None of the above
- 12) Efficiency by using rotor resistance control in IM is _____.
- a) High
 - b) Low
 - c) Very high
 - d) Very low
- 13) Full-converter can be used in DC motor for regenerative braking in _____.
- a) Constant Operation
 - b) Variable Operation
 - c) Inversion Operation
 - d) Opposite Operation
- 14) Reluctance motor is a _____.
- a) Variable torque motor
 - b) Low torque variable speed motor
 - c) Self-starting type synchronous motor
 - d) Low noise, slow speed motor

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Industrial Drives Control (197045701)

Day & Date: Wednesday, 15-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume data wherever necessary.

Section – I

Q.2 Answer the following (Any four) 16

- a) Draw the block diagram of electrical drive system and explain.
- b) Draw and explain single phase half-controlled rectifier fed separately excited D.C. motor.
- c) Write the classification of drives with examples.
- d) Explain regenerative braking in separately excited dc motor also draw speed torque characteristics.
- e) Explain the chopper fed DC separately excited motor in motoring mode.

Q.3 Answer the following (Any Two) 12

- a) Explain the closed loop speed control of Multimotor drives.
- b) A 220 V, 1500 rpm, 10A separately excited dc motor is fed from a 1 phase fully controlled rectifier with an ac source voltage of 230V, 50Hz, $R_a=2 \Omega$. conduction can be assumed to be continuous, calculate firing for
 - i) Half the rated motor torque at 500 rpm
 - ii) rated motor torque at (-1000) rpm
- c) A 230 V, 960 rpm and 200 A separately excited dc motor has an armature resistance of 0.02Ω . The motor is operated in dynamic braking with chopper control. The braking resistance has value of 2Ω .
 - i) Calculate duty ratio of chopper for motor speed of 600 rpm & braking torque equal to twice rated value.
 - ii) What will be motor speed for duty ratio of 0.6 & motor torque equal to twice its rated value.

Section – II

Q.4 Answer the following (Any Four) 16

- a) Explain stator voltage control of an induction motor with speed torque characteristics.
- b) Explain with circuit diagram converter circuit for switched reluctance motor.
- c) Explain the static Schrebius method of speed control of three phase induction motor.
- d) With neat sketch explain VSI feed induction motor drive.
- e) Explain the operation of Chopper controlled rotor resistance control drive.

Q.5 Answer the following (Any Two)

- a) What are the different types of stepper motors are there? Explain their operation.
- b) A 400 V, star connected, 3 phase, 6 pole, 50 Hz induction motor has following parameter referred to stator $R_s = R_r' = 1$ ohm, $X_s = X_r' = 2$ ohm, for regenerative braking operation of motor, Find
- i) Maximum torque it can hold and range for safe operation
 - ii) Speed at which it will hold load with torque 100 N-m
- c) A 2.8 kw, 400v, 50Hz, 4 pole, 1370 rpm delta connected squirrel cage induction motor has following parameter referred to stator $R_s = 2$ ohm, $R_r' = 5$ ohm, $X_s = X_r' = 5$ ohm, $X_m = 80$ ohm motor speed is controlled by stator voltage control. When driving a fan load it run at a speed rated speed at a rated voltage calculate
- i) Motor terminal voltage, current and torque at 1200 rpm.
 - ii) Motor speed, current and torque for terminal voltage of 300v.

- 8) A synchronous motor is a useful industrial machine due to its property of ____.
- a) Improving the power factor
 - b) Speed is constant
 - c) Can always be adjusted to operate at unity power factor
 - d) All of the above
- 9) Stepper motor is popular for ____.
- a) Speed control
 - b) Position control
 - c) Torque control
 - d) Both a and b
- 10) For high frequency choppers the device that is preferred is ____.
- a) Thyristor
 - b) TRIAC
 - c) Transistor
 - d) GTO
- 11) When quick speed reversal is a consideration, the motor preferred is ____.
- a) Synchronous Motor
 - b) Squirrel cage Induction Motor
 - c) Wound Rotor induction motor
 - d) DC Motor
- 12) The operating speed of a synchronous motor can be changed to new fixed value by ____.
- a) Changing the load
 - b) Changing the supply voltage
 - c) Changing frequency
 - d) Using brakes
- 13) Which duty cycle is preferred if the load requires a constant power for short period of time and rest for sufficient longer duration?
- a) Short Time duty
 - b) Intermittent duty
 - c) Intermittent duty with starting
 - d) Intermittent duty with starting and braking
- 14) The equilibrium speed of a motor load system is obtained ____.
- a) When motor torque equals the load torque
 - b) When motor torque is less than the load torque
 - c) When motor torque is more than the load torque
 - d) None of these

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Industrial Drives Control (197045701)

Day & Date: Wednesday, 15-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume data wherever necessary.

Section – I

Q.2 Answer the following (Any four) 16

- Draw the block diagram of electrical drive system and explain.
- Draw and explain single phase half-controlled rectifier fed separately excited D.C. motor.
- Write the classification of drives with examples.
- Explain regenerative braking in separately excited dc motor also draw speed torque characteristics.
- Explain the chopper fed DC separately excited motor in motoring mode.

Q.3 Answer the following (Any Two) 12

- Explain the closed loop speed control of Multimotor drives.
- A 220 V, 1500 rpm, 10A separately excited dc motor is fed from a 1 phase fully controlled rectifier with an ac source voltage of 230V, 50Hz, $R_a=2 \Omega$. conduction can be assumed to be continuous, calculate firing for
 - Half the rated motor torque at 500 rpm
 - rated motor torque at (-1000) rpm
- A 230 V, 960 rpm and 200 A separately excited dc motor has an armature resistance of 0.02Ω . The motor is operated in dynamic braking with chopper control. The braking resistance has value of 2Ω .
 - Calculate duty ratio of chopper for motor speed of 600 rpm & braking torque equal to twice rated value.
 - What will be motor speed for duty ratio of 0.6 & motor torque equal to twice its rated value.

Section – II

Q.4 Answer the following (Any Four) 16

- Explain stator voltage control of an induction motor with speed torque characteristics.
- Explain with circuit diagram converter circuit for switched reluctance motor.
- Explain the static Schrebius method of speed control of three phase induction motor.
- With neat sketch explain VSI feed induction motor drive.
- Explain the operation of Chopper controlled rotor resistance control drive.

Q.5 Answer the following (Any Two)

- a) What are the different types of stepper motors are there? Explain their operation.
- b) A 400 V, star connected, 3 phase, 6 pole, 50 Hz induction motor has following parameter referred to stator $R_s = R_r' = 1$ ohm, $X_s = X_r' = 2$ ohm, for regenerative braking operation of motor, Find
- Maximum torque it can hold and range for safe operation
 - Speed at which it will hold load with torque 100 N-m
- c) A 2.8 kw, 400v, 50Hz, 4 pole, 1370 rpm delta connected squirrel cage induction motor has following parameter referred to stator $R_s = 2$ ohm, $R_r' = 5$ ohm, $X_s = X_r' = 5$ ohm, $X_m = 80$ ohm motor speed is controlled by stator voltage control. When driving a fan load it run at a speed rated speed at a rated voltage calculate
- Motor terminal voltage, current and torque at 1200 rpm.
 - Motor speed, current and torque for terminal voltage of 300v.

Seat No.	
----------	--

Set **P**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume the suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Tick the correct options**14**

- 1) In a power system with long transmission lines, economic dispatch means _____.
 - a) Equal incremental costs at generator buses
 - b) Equal incremental costs at load buses
 - c) Equal load on all generators
 - d) That generators share the load proportional to their rating
- 2) In dynamic programming method the cost function $F_N(y)$ represents _____.
 - a) Cost of generation of N MW by y number of unit
 - b) Cost of generation of y MW by N number of unit
 - c) Cost of generation of y MW by N^{th} unit
 - d) Cost of generation of N MW by y^{th} unit
- 3) Governors for speed control of generating units provide _____.
 - a) Flat speed load characteristic
 - b) An increase of speed unit's increase of load
 - c) A decrease of speed with increase of load
 - d) Either (b) or (c) depending on size of generator
- 4) In central AGC of a given control area, the change in frequency _____.
 - a) Volume control error
 - b) Area control error
 - c) Nonlinear control error
 - d) Optimal control error
- 5) Two generating plants feed a load centre through a transmission network. For maximum Economy _____.
 - a) The incremental fuel cost should be the same for the two stations.
 - b) The two stations should share the load in the ratio of their installed capacities.
 - c) The more efficient plant should supply more load.
 - d) The incremental cost of power delivered at the load centre should be the same for both the plants.
- 6) The units for heat rate are _____.
 - a) Kcal/KWh
 - b) KWh/kcal
 - c) Kcal/hour
 - d) KW

- 7) In power system reactive power is necessary _____
- a) For power transmission
 - b) For stabilizing voltage level
 - c) For stabilizing frequency
 - d) For counter acting the effect of reactance in the transmission system
- 8) At times of peak load a power system needs _____
- a) Injection of lagging vars
 - b) injection of leading vars
 - c) Injection of lagging or leading vars
 - d) None of the above
- 9) The changes in reactive power at a bus have a great effect on the voltage magnitude _____
- a) of that bus
 - b) of distant busses
 - c) of all the busses
 - d) None of the above
- 10) Contingency definition gives list of components outages _____
- a) Which includes the contingencies with high probability of occurrence
 - b) Which provide the contingency in decreasing order of severity
 - c) For outage simulation
 - d) Any of the above
- 11) If a power system observes an accumulated time error, it should correct it by _____
- a) Increasing its own generation
 - b) Decreasing its own generation
 - c) Coordinating time error correction with other interconnected systems
 - d) Any of above
- 12) A security analysis program uses _____
- a) AC load flow
 - b) DC load flow
 - c) Both AC and DC load flow
 - d) None
- 13) Voltage stability problem normally occurs _____
- a) Heavily stressed system
 - b) Medium stressed system
 - c) Low stressed system
 - d) None of these
- 14) Energy control centre is supposed to perform the following security functions _____
- a) System Monitoring
 - b) Contingency analysis
 - c) Corrective action analysis
 - d) All of these

Seat No.	
-------------	--

Set **P**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four:** **16**

- a) What is mean by unit commitment? Explain the necessity of it.
- b) What do you understand loading? Briefly introduce different types of loading?
- c) Explain with mathematical formulation the economic load dispatch neglecting transmission losses.
- d) Draw block diagram, with illustrative transfer function of the load frequency control of Two area system. Explain function of each block of control system.
- e) Define and explain the terms:
 - i) Control area and
 - ii) Area control error
- f) What are the major control loops in a large generator?

Q.3 Solve any Two **12**

- a) Explain the dynamic programming method for unit commitment with suitable example.
- b) A system having two generating units connected through a line has following loss coefficient $B_{11} = 0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{12} = -0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{22} = 0.13 \times 10^{-2} \text{ MW}^{-1}$ Power is being dispatched economically with $P_1 = 120 \text{ MW}$ and $P_2 = 200 \text{ MW}$. To raise the system load by 1 MW, it costs additional Rs. 40 per hour.

Find:

- i) Penalty factor for plant 1
 - ii) The additional cost per hour to increase the output of plant 1 by 1 MW.
- c) Explain the hydrothermal scheduling.

Section – II**Q.4 Solve any Four:** **16**

- a) Define power angle and voltage stability.
- b) How to prevent voltage collapse problem? Explain.
- c) Write a short note on sensitivity factor.
- d) Explain effective counter measure to prevent voltage instability.
- e) Give the comparison between the different compensating schemes.

Q.5 Solve any Two: **12**

- a) What is the requirement of reactive power compensation in transmission system?
- b) Explain the mathematical formulation of voltage stability problem.
- c) Explain the different types of static compensator. Briefly introduce each compensator with neat diagram.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume the suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Tick the correct options**14**

- 1) At times of peak load a power system needs _____
 - a) Injection of lagging vars
 - b) injection of leading vars
 - c) Injection of lagging or leading vars
 - d) None of the above
- 2) The changes in reactive power at a bus have a great effect on the voltage magnitude _____
 - a) of that bus
 - b) of distant busses
 - c) of all the busses
 - d) None of the above
- 3) Contingency definition gives list of components outages _____
 - a) Which includes the contingencies with high probability of occurrence
 - b) Which provide the contingency in decreasing order of severity
 - c) For outage simulation
 - d) Any of the above
- 4) If a power system observes an accumulated time error, it should correct it by _____
 - a) Increasing its own generation
 - b) Decreasing its own generation
 - c) Coordinating time error correction with other interconnected systems
 - d) Any of above
- 5) A security analysis program uses _____
 - a) AC load flow
 - b) DC load flow
 - c) Both AC and DC load flow
 - d) None
- 6) Voltage stability problem normally occurs _____
 - a) Heavily stressed system
 - b) Medium stressed system
 - c) Low stressed system
 - d) None of these
- 7) Energy control centre is supposed to perform the following security functions _____
 - a) System Monitoring
 - b) Contingency analysis
 - c) Corrective action analysis
 - d) All of these

- 8) In a power system with long transmission lines, economic dispatch means _____
- Equal incremental costs at generator buses
 - Equal incremental costs at load buses
 - Equal load on all generators
 - That generators share the load proportional to their rating
- 9) In dynamic programming method the cost function $F_N(y)$ represents _____.
- Cost of generation of N MW by y number of unit
 - Cost of generation of y MW by N number of unit
 - Cost of generation of y MW by Nth unit
 - Cost of generation of N MW by yth unit
- 10) Governors for speed control of generating units provide _____
- Flat speed load characteristic
 - An increase of speed unit's increase of load
 - A decrease of speed with increase of load
 - Either (b) or (c) depending on size of generator
- 11) In central AGC of a given control area, the change in frequency _____
- Volume control error
 - Area control error
 - Nonlinear control error
 - Optimal control error
- 12) Two generating plants feed a load centre through a transmission network. For maximum Economy _____.
- The incremental fuel cost should be the same for the two stations.
 - The two stations should share the load in the ratio of their installed capacities.
 - The more efficient plant should supply more load.
 - The incremental cost of power delivered at the load centre should be the same for both the plants.
- 13) The units for heat rate are _____
- Kcal/KWh
 - KWh/kcal
 - Kcal/hour
 - KW
- 14) In power system reactive power is necessary _____
- For power transmission
 - For stabilizing voltage level
 - For stabilizing frequency
 - For counter acting the effect of reactance in the transmission system

Seat No.	
----------	--

Set Q

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four: **16**

- a) What is mean by unit commitment? Explain the necessity of it.
- b) What do you understand loading? Briefly introduce different types of loading?
- c) Explain with mathematical formulation the economic load dispatch neglecting transmission losses.
- d) Draw block diagram, with illustrative transfer function of the load frequency control of Two area system. Explain function of each block of control system.
- e) Define and explain the terms:
 - i) Control area and
 - ii) Area control error
- f) What are the major control loops in a large generator?

Q.3 Solve any Two **12**

- a) Explain the dynamic programming method for unit commitment with suitable example.
- b) A system having two generating units connected through a line has following loss coefficient $B_{11} = 0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{12} = -0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{22} = 0.13 \times 10^{-2} \text{ MW}^{-1}$ Power is being dispatched economically with $P_1 = 120 \text{ MW}$ and $P_2 = 200 \text{ MW}$. To raise the system load by 1 MW, it costs additional Rs. 40 per hour.

Find:

- i) Penalty factor for plant 1
- ii) The additional cost per hour to increase the output of plant 1 by 1 MW.
- c) Explain the hydrothermal scheduling.

Section – II

Q.4 Solve any Four: **16**

- a) Define power angle and voltage stability.
- b) How to prevent voltage collapse problem? Explain.
- c) Write a short note on sensitivity factor.
- d) Explain effective counter measure to prevent voltage instability.
- e) Give the comparison between the different compensating schemes.

Q.5 Solve any Two: **12**

- a) What is the requirement of reactive power compensation in transmission system?
- b) Explain the mathematical formulation of voltage stability problem.
- c) Explain the different types of static compensator. Briefly introduce each compensator with neat diagram.

Seat No.	
----------	--

Set **R**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume the suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Tick the correct options**14**

- 1) If a power system observes an accumulated time error, it should correct it by _____.
 - a) Increasing its own generation
 - b) Decreasing its own generation
 - c) Coordinating time error correction with other interconnected systems
 - d) Any of above
- 2) A security analysis program uses _____.
 - a) AC load flow
 - b) DC load flow
 - c) Both AC and DC load flow
 - d) None
- 3) Voltage stability problem normally occurs _____.
 - a) Heavily stressed system
 - b) Medium stressed system
 - c) Low stressed system
 - d) None of these
- 4) Energy control centre is supposed to perform the following security functions _____.
 - a) System Monitoring
 - b) Contingency analysis
 - c) Corrective action analysis
 - d) All of these
- 5) In a power system with long transmission lines, economic dispatch means _____.
 - a) Equal incremental costs at generator buses
 - b) Equal incremental costs at load buses
 - c) Equal load on all generators
 - d) That generators share the load proportional to their rating
- 6) In dynamic programming method the cost function $F_N(y)$ represents _____.
 - a) Cost of generation of N MW by y number of unit
 - b) Cost of generation of y MW by N number of unit
 - c) Cost of generation of y MW by N^{th} unit
 - d) Cost of generation of N MW by y^{th} unit

- 7) Governors for speed control of generating units provide _____
- Flat speed load characteristic
 - An increase of speed unit's increase of load
 - A decrease of speed with increase of load
 - Either (b) or (c) depending on size of generator
- 8) In central AGC of a given control area, the change in frequency _____
- Volume control error
 - Area control error
 - Nonlinear control error
 - Optimal control error
- 9) Two generating plants feed a load centre through a transmission network. For maximum Economy _____.
- The incremental fuel cost should be the same for the two stations.
 - The two stations should share the load in the ratio of their installed capacities.
 - The more efficient plant should supply more load.
 - The incremental cost of power delivered at the load centre should be the same for both the plants.
- 10) The units for heat rate are _____
- Kcal/KWh
 - KWh/kcal
 - Kcal/hour
 - KW
- 11) In power system reactive power is necessary _____
- For power transmission
 - For stabilizing voltage level
 - For stabilizing frequency
 - For counter acting the effect of reactance in the transmission system
- 12) At times of peak load a power system needs _____
- Injection of lagging vars
 - injection of leading vars
 - Injection of lagging or leading vars
 - None of the above
- 13) The changes in reactive power at a bus have a great effect on the voltage magnitude _____
- of that bus
 - of distant busses
 - of all the busses
 - None of the above
- 14) Contingency definition gives list of components outages _____
- Which includes the contingencies with high probability of occurrence
 - Which provide the contingency in decreasing order of severity
 - For outage simulation
 - Any of the above

Seat No.	
----------	--

Set **R**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four: **16**

- a) What is mean by unit commitment? Explain the necessity of it.
- b) What do you understand loading? Briefly introduce different types of loading?
- c) Explain with mathematical formulation the economic load dispatch neglecting transmission losses.
- d) Draw block diagram, with illustrative transfer function of the load frequency control of Two area system. Explain function of each block of control system.
- e) Define and explain the terms:
 - i) Control area and
 - ii) Area control error
- f) What are the major control loops in a large generator?

Q.3 Solve any Two **12**

- a) Explain the dynamic programming method for unit commitment with suitable example.
- b) A system having two generating units connected through a line has following loss coefficient $B_{11} = 0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{12} = -0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{22} = 0.13 \times 10^{-2} \text{ MW}^{-1}$ Power is being dispatched economically with $P_1 = 120 \text{ MW}$ and $P_2 = 200 \text{ MW}$. To raise the system load by 1 MW, it costs additional Rs. 40 per hour.

Find:

- i) Penalty factor for plant 1
 - ii) The additional cost per hour to increase the output of plant 1 by 1 MW.
- c) Explain the hydrothermal scheduling.

Section – II

Q.4 Solve any Four: **16**

- a) Define power angle and voltage stability.
- b) How to prevent voltage collapse problem? Explain.
- c) Write a short note on sensitivity factor.
- d) Explain effective counter measure to prevent voltage instability.
- e) Give the comparison between the different compensating schemes.

Q.5 Solve any Two: **12**

- a) What is the requirement of reactive power compensation in transmission system?
- b) Explain the mathematical formulation of voltage stability problem.
- c) Explain the different types of static compensator. Briefly introduce each compensator with neat diagram.

Seat No.	
----------	--

Set **S**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume the suitable data whenever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Tick the correct options**14**

- 1) The units for heat rate are _____

a) Kcal/KWh	b) KWh/kcal
c) Kcal/hour	d) KW
- 2) In power system reactive power is necessary _____
 - a) For power transmission
 - b) For stabilizing voltage level
 - c) For stabilizing frequency
 - d) For counter acting the effect of reactance in the transmission system
- 3) At times of peak load a power system needs _____
 - a) Injection of lagging vars
 - b) injection of leading vars
 - c) Injection of lagging or leading vars
 - d) None of the above
- 4) The changes in reactive power at a bus have a great effect on the voltage magnitude _____

a) of that bus	b) of distant busses
c) of all the busses	d) None of the above
- 5) Contingency definition gives list of components outages _____
 - a) Which includes the contingencies with high probability of occurrence
 - b) Which provide the contingency in decreasing order of severity
 - c) For outage simulation
 - d) Any of the above
- 6) If a power system observes an accumulated time error, it should correct it by _____
 - a) Increasing its own generation
 - b) Decreasing its own generation
 - c) Coordinating time error correction with other interconnected systems
 - d) Any of above

Seat No.	
----------	--

Set **S**

Fourth Y. (B Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power System and Operation Control (197045702)

Day & Date: Thursday, 16-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I**Q.2 Solve any Four:** **16**

- a) What is mean by unit commitment? Explain the necessity of it.
- b) What do you understand loading? Briefly introduce different types of loading?
- c) Explain with mathematical formulation the economic load dispatch neglecting transmission losses.
- d) Draw block diagram, with illustrative transfer function of the load frequency control of Two area system. Explain function of each block of control system.
- e) Define and explain the terms:
 - i) Control area and
 - ii) Area control error
- f) What are the major control loops in a large generator?

Q.3 Solve any Two **12**

- a) Explain the dynamic programming method for unit commitment with suitable example.
- b) A system having two generating units connected through a line has following loss coefficient $B_{11} = 0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{12} = -0.1 \times 10^{-2} \text{ MW}^{-1}$, $B_{22} = 0.13 \times 10^{-2} \text{ MW}^{-1}$ Power is being dispatched economically with $P_1 = 120 \text{ MW}$ and $P_2 = 200 \text{ MW}$. To raise the system load by 1 MW, it costs additional Rs. 40 per hour.

Find:

- i) Penalty factor for plant 1
- ii) The additional cost per hour to increase the output of plant 1 by 1 MW.
- c) Explain the hydrothermal scheduling.

Section – II**Q.4 Solve any Four:** **16**

- a) Define power angle and voltage stability.
- b) How to prevent voltage collapse problem? Explain.
- c) Write a short note on sensitivity factor.
- d) Explain effective counter measure to prevent voltage instability.
- e) Give the comparison between the different compensating schemes.

Q.5 Solve any Two: **12**

- a) What is the requirement of reactive power compensation in transmission system?
- b) Explain the mathematical formulation of voltage stability problem.
- c) Explain the different types of static compensator. Briefly introduce each compensator with neat diagram.

Seat No.	
----------	--

Set P

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) Which of the following provides highest energy conversion efficiency in non-concentrating solar collectors?
 - a) Flat plate collectors
 - b) Evacuated flat plate collectors
 - c) Evacuated-tube collectors
 - d) Parabolic collectors
- 2) Which of the following power plant is free from environmental pollution problem?
 - a) Thermal Power Plant
 - b) Nuclear Power Plant
 - c) Hydro Power Plant
 - d) Geothermal Power Plant
- 3) Winds having following speed are suitable to operate wind turbines.
 - a) 5 - 25m/s
 - b) 10 - 35m/s
 - c) 20 - 45m/s
 - d) 30 - 55m/s
- 4) The amount of energy available in the wind at any instant is proportional to _____ of the wind speed.
 - a) Square root power of two
 - b) Square root power of three
 - c) Square power
 - d) Cube power
- 5) The current density of a photo voltaic cell ranges from
 - a) 10 - 20 mA/cm²
 - b) 40 - 50 mA/cm²
 - c) 20 - 40 mA/cm²
 - d) 60 - 100 mA/cm²
- 6) Solar constant is _____.
 - a) 140Wm⁻²
 - b) 1.4Wm⁻²
 - c) 1.4 kWm⁻²
 - d) 1.4 MWm⁻²
- 7) What is extraterrestrial radiation?
 - a) Intensity of the sun at the top of earth's atmosphere.
 - b) Intensity of the sun at the top of its atmosphere.
 - c) Energy of the sun at the top of earth's atmosphere.
 - d) Force of the sun on earth.
- 8) Sun generates _____ Calories/second.
 - a) 9×10^{25}
 - b) 01×10^{25}
 - c) 10×10^{25}
 - d) 0.9×10^{25}

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR. 16

- What is Solar constant? Explain.
- Differentiate between conventional and non-conventional sources of energy.
- Explain briefly components of a wind energy system.
- What are the advantages and disadvantages of concentrating collectors over flat plate collectors?
- Write a note on Betz criterion.

Q.3 Attempt any TWO. 12

- Explain terrestrial and extra-terrestrial radiations with neat diagrams.
- Explain briefly components of a wind energy system; also explain horizontal types of wind mills.
- Write a note on parabolic trough.

Section – II

Q.4 Attempt Any FOUR. 16

- Explain different types of geothermal resources.
- Explain the need of DEC.
- Classify the instruments for measuring solar radiation. Explain any one in detail.
- Write a note on latent heat storage.
- Explain Carnot Cycle.

Q.5 Attempt Any TWO. 12

- Draw and describe the binary cycle geothermal power plant.
- Explain tidal energy conversion system with proper diagram.
- Explain fixed drum type biogas plant.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) Sun generates _____ Calories/second.
 - a) 9×10^{25}
 - b) 01×10^{25}
 - c) 10×10^{25}
 - d) 0.9×10^{25}
- 2) Biomass is used in the production of _____.
 - a) Fibers
 - b) Chemicals
 - c) Transportation fuels
 - d) Biochemical
- 3) This is also called a biogas _____.
 - a) Biobutanol
 - b) Biodiesel
 - c) Bioethanol
 - d) Biomethane
- 4) What does OTEC stands for?
 - a) Ocean thermal energy cultivation
 - b) Ocean thermal energy conversion
 - c) Ocean thermal energy consumption
 - d) Ocean techno energy conservation
- 5) The molten rock within the earth is _____.
 - a) Igneous
 - b) Magma
 - c) Sedimentary
 - d) Metamorphic
- 6) The following is (are) type(s) of Geothermal resource.
 - a) Hydrothermal
 - b) Hot dry rock
 - c) Geopressurised
 - d) All of the above
- 7) In Carnot cycle the heat receive at _____ temperature.
 - a) Lower
 - b) Higher
 - c) Constant
 - d) None of the above
- 8) Which of the following provides highest energy conversion efficiency in non-concentrating solar collectors?
 - a) Flat plate collectors
 - b) Evacuated flat plate collectors
 - c) Evacuated-tube collectors
 - d) Parabolic collectors

- 9) Which of the following power plant is free from environmental pollution problem?
- a) Thermal Power Plant b) Nuclear Power Plant
c) Hydro Power Plant d) Geothermal Power Plant
- 10) Winds having following speed are suitable to operate wind turbines.
- a) 5 - 25m/s b) 10 - 35m/s
c) 20 - 45m/s d) 30 - 55m/s
- 11) The amount of energy available in the wind at any instant is proportional to _____ of the wind speed.
- a) Square root power of two b) Square root power of three
c) Square power d) Cube power
- 12) The current density of a photo voltaic cell ranges from
- a) 10 - 20 mA/cm² b) 40 - 50 mA/cm²
c) 20 - 40 mA/cm² d) 60 - 100 mA/cm²
- 13) Solar constant is _____.
- a) 140Wm⁻² b) 1.4Wm⁻²
c) 1.4 kWm⁻² d) 1.4 MWm⁻²
- 14) What is extraterrestrial radiation?
- a) Intensity of the sun at the top of earth's atmosphere.
b) Intensity of the sun at the top of its atmosphere.
c) Energy of the sun at the top of earth's atmosphere.
d) Force of the sun on earth.

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR. 16

- What is Solar constant? Explain.
- Differentiate between conventional and non-conventional sources of energy.
- Explain briefly components of a wind energy system.
- What are the advantages and disadvantages of concentrating collectors over flat plate collectors?
- Write a note on Betz criterion.

Q.3 Attempt any TWO. 12

- Explain terrestrial and extra-terrestrial radiations with neat diagrams.
- Explain briefly components of a wind energy system; also explain horizontal types of wind mills.
- Write a note on parabolic trough.

Section – II

Q.4 Attempt Any FOUR. 16

- Explain different types of geothermal resources.
- Explain the need of DEC.
- Classify the instruments for measuring solar radiation. Explain any one in detail.
- Write a note on latent heat storage.
- Explain Carnot Cycle.

Q.5 Attempt Any TWO. 12

- Draw and describe the binary cycle geothermal power plant.
- Explain tidal energy conversion system with proper diagram.
- Explain fixed drum type biogas plant.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the options. 14

- 1) What does OTEC stands for?
 - a) Ocean thermal energy cultivation
 - b) Ocean thermal energy conversion
 - c) Ocean thermal energy consumption
 - d) Ocean techno energy conservation
- 2) The molten rock within the earth is _____.
 - a) Igneous
 - b) Magma
 - c) Sedimentary
 - d) Metamorphic
- 3) The following is (are) type(s) of Geothermal resource.
 - a) Hydrothermal
 - b) Hot dry rock
 - c) Geopressurised
 - d) All of the above
- 4) In Carnot cycle the heat receive at _____ temperature.
 - a) Lower
 - b) Higher
 - c) Constant
 - d) None of the above
- 5) Which of the following provides highest energy conversion efficiency in non-concentrating solar collectors?
 - a) Flat plate collectors
 - b) Evacuated flat plate collectors
 - c) Evacuated-tube collectors
 - d) Parabolic collectors
- 6) Which of the following power plant is free from environmental pollution problem?
 - a) Thermal Power Plant
 - b) Nuclear Power Plant
 - c) Hydro Power Plant
 - d) Geothermal Power Plant
- 7) Winds having following speed are suitable to operate wind turbines.
 - a) 5 - 25m/s
 - b) 10 - 35m/s
 - c) 20 - 45m/s
 - d) 30 - 55m/s
- 8) The amount of energy available in the wind at any instant is proportional to _____ of the wind speed.
 - a) Square root power of two
 - b) Square root power of three
 - c) Square power
 - d) Cube power

- 9) The current density of a photo voltaic cell ranges from
- | | |
|-------------------------------|--------------------------------|
| a) 10 - 20 mA/cm ² | b) 40 - 50 mA/cm ² |
| c) 20 - 40 mA/cm ² | d) 60 - 100 mA/cm ² |
- 10) Solar constant is ____.
- | | |
|--------------------------|--------------------------|
| a) 140Wm ⁻² | b) 1.4Wm ⁻² |
| c) 1.4 kWm ⁻² | d) 1.4 MWm ⁻² |
- 11) What is extraterrestrial radiation?
- | |
|-----------------------------------------------------------|
| a) Intensity of the sun at the top of earth's atmosphere. |
| b) Intensity of the sun at the top of its atmosphere. |
| c) Energy of the sun at the top of earth's atmosphere. |
| d) Force of the sun on earth. |
- 12) Sun generates ____ Calories/second.
- | | |
|------------------------|-------------------------|
| a) 9×10^{25} | b) 01×10^{25} |
| c) 10×10^{25} | d) 0.9×10^{25} |
- 13) Biomass is used in the production of ____.
- | | |
|-------------------------|----------------|
| a) Fibers | b) Chemicals |
| c) Transportation fuels | d) Biochemical |
- 14) This is also called a biogas ____.
- | | |
|---------------|---------------|
| a) Biobutanol | b) Biodiesel |
| c) Bioethanol | d) Biomethane |

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR. 16

- What is Solar constant? Explain.
- Differentiate between conventional and non-conventional sources of energy.
- Explain briefly components of a wind energy system.
- What are the advantages and disadvantages of concentrating collectors over flat plate collectors?
- Write a note on Betz criterion.

Q.3 Attempt any TWO. 12

- Explain terrestrial and extra-terrestrial radiations with neat diagrams.
- Explain briefly components of a wind energy system; also explain horizontal types of wind mills.
- Write a note on parabolic trough.

Section – II

Q.4 Attempt Any FOUR. 16

- Explain different types of geothermal resources.
- Explain the need of DEC.
- Classify the instruments for measuring solar radiation. Explain any one in detail.
- Write a note on latent heat storage.
- Explain Carnot Cycle.

Q.5 Attempt Any TWO. 12

- Draw and describe the binary cycle geothermal power plant.
- Explain tidal energy conversion system with proper diagram.
- Explain fixed drum type biogas plant.

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Renewable Energy Sources (197045703)

Day & Date: Friday, 17-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt any FOUR. 16

- What is Solar constant? Explain.
- Differentiate between conventional and non-conventional sources of energy.
- Explain briefly components of a wind energy system.
- What are the advantages and disadvantages of concentrating collectors over flat plate collectors?
- Write a note on Betz criterion.

Q.3 Attempt any TWO. 12

- Explain terrestrial and extra-terrestrial radiations with neat diagrams.
- Explain briefly components of a wind energy system; also explain horizontal types of wind mills.
- Write a note on parabolic trough.

Section – II

Q.4 Attempt Any FOUR. 16

- Explain different types of geothermal resources.
- Explain the need of DEC.
- Classify the instruments for measuring solar radiation. Explain any one in detail.
- Write a note on latent heat storage.
- Explain Carnot Cycle.

Q.5 Attempt Any TWO. 12

- Draw and describe the binary cycle geothermal power plant.
- Explain tidal energy conversion system with proper diagram.
- Explain fixed drum type biogas plant.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer

14

- 1) On what factor does the operating speed of the relay depend?
 - a) Rate of flux built up
 - b) Armature core air gap
 - c) Spring tension
 - d) All of these
- 2) The relay with inverse time characteristic will operate within _____
 - a) 1.5 sec
 - b) 5 to 10 sec
 - c) 5 to 20 sec
 - d) 20 to 30 sec
- 3) The operation speed of a relay depends on _____
 - a) Rate of flux buildup
 - b) Armature core air gap
 - c) Spring tension
 - d) All the above
- 4) What is the relation between the fusing current and the diameter of the wire?
 - a) $I = k d^3$
 - b) $I = k d^{3/2}$
 - c) $I = k d^2$
 - d) $I = k d^{2/3}$
- 5) Differential relays are used for the protection of equipment's against _____
 - a) Internal faults
 - b) Over-current
 - c) Reverse current
 - d) Reverse
- 6) Relay is preferred for phase fault on short transmission line.
 - a) Induction type
 - b) Reactance
 - c) Impedance
 - d) None of the above
- 7) Which of the following relay has inherent directional characteristics?
 - a) Mho relay
 - b) Impedance relay
 - c) Reactance relay
 - d) Distance
- 8) Which of the following ratings of the transformer differential protection is recommended?
 - a) Above 30 kVA
 - b) Equal to and above 5 MVA
 - c) Equal to and above 25 MVA
 - d) None of the above

- 9) In a single bus-bar system there will be complete shut down when _____
- a) Fault occurs on the bus itself
 - b) Fault occurs on neutral line
 - c) Two or more faults occur simultaneously
 - d) Fault occurs with respect to earthing
- 10) Rate of rise of restriking voltage depend on _____
- a) Type of circuit breaker
 - b) Capacitance of the system
 - c) Inductance of the system
 - d) Both (b) and (c)
- 11) What is the arc voltage in a circuit breaker?
- a) In phase with the arc current
 - b) Lagging the arc current by 90°
 - c) Leading the arc current by 90°
 - d) Lagging the arcing current by 180°
- 12) Circuit breakers usually operate under _____
- a) Steady short circuit current
 - b) Sub transient state of short circuit current
 - c) Transient state of short circuit current
 - d) None of these
- 13) What is the advantage of using oil as the arc quenching medium?
- a) Good cooling properties
 - b) High dielectric strength
 - c) Acts as an insulator
 - d) All of these
- 14) The protection against over-voltage due to lightening is provided by _____
- a) Use of surge diverters
 - b) Low tower footing resistance
 - c) Use of overhead ground wires
 - d) Any of the above

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any Four. **16**

- a) What are the advantages of static relay over electromagnetic relay?
- b) What do you mean by zones of protection? Explain primary and backup protection.
- c) What are the factors affecting the selection of fuse?
- d) Explain the following terms
 - i) Fuse element
 - ii) Fusing factor
 - iii) Arcing and pre arcing time
 - iv) Cut-off current
- e) Explain how reactance relay is used for distance protection? Draw its characteristics on R-X diagram.
- f) Describe microprocessor based reactance relay with block diagram.

Q.3 Solve any Two. **12**

- a) Describe microprocessor based mho & offset mho relay with block diagram.
- b) With a neat sketch explain electromagnetic induction relay.
- c) Determine the time of operation of an IDMT relay rating 5A and having setting of 125% and TSM = 0.5. The relay is connected through C.T. of 400/5A. The fault current is 4000A. The operating time for PSM of 8 is 3.2 Second.

Section – II

Q.4 Solve any Four. **16**

- a) Explain differential protection scheme used for transformer.
- b) Explain restricted earth fault protection scheme used for generator.
- c) Explain current zero interruption method of arc in circuit breaker.
- d) Explain arcing phenomenon in circuit breaker.
- e) With suitable diagram explain construction & operation of vacuum circuit breaker.
- f) Explain the causes of over voltages in power system.

Q.5 Solve any Two. **12**

- a) Explain differential protection of bus bar with neat diagram.
- b) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
- c) Explain the phenomenon of capacitive current interruption in circuit breaker with suitable waveforms.

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer

14

- 1) Which of the following ratings of the transformer differential protection is recommended?
 - a) Above 30 kVA
 - b) Equal to and above 5 MVA
 - c) Equal to and above 25 MVA
 - d) None of the above
- 2) In a single bus-bar system there will be complete shut down when _____
 - a) Fault occurs on the bus itself
 - b) Fault occurs on neutral line
 - c) Two or more faults occur simultaneously
 - d) Fault occurs with respect to earthing
- 3) Rate of rise of restriking voltage depend on _____
 - a) Type of circuit breaker
 - b) Capacitance of the system
 - c) Inductance of the system
 - d) Both (b) and (c)
- 4) What is the arc voltage in a circuit breaker?
 - a) In phase with the arc current
 - b) Lagging the arc current by 90°
 - c) Leading the arc current by 90°
 - d) Lagging the arcing current by 180°
- 5) Circuit breakers usually operate under _____
 - a) Steady short circuit current
 - b) Sub transient state of short circuit current
 - c) Transient state of short circuit current
 - d) None of these
- 6) What is the advantage of using oil as the arc quenching medium?
 - a) Good cooling properties
 - b) High dielectric strength
 - c) Acts as an insulator
 - d) All of these
- 7) The protection against over-voltage due to lightning is provided by _____
 - a) Use of surge diverters
 - b) Low tower footing resistance
 - c) Use of overhead ground wires
 - d) Any of the above

- 8) On what factor does the operating speed of the relay depend?
a) Rate of flux built up b) Armature core air gap
c) Spring tension d) All of these
- 9) The relay with inverse time characteristic will operate within _____
a) 1.5 sec b) 5 to 10 sec
c) 5 to 20 sec d) 20 to 30 sec
- 10) The operation speed of a relay depends on _____
a) Rate of flux buildup b) Armature core air gap
c) Spring tension d) All the above
- 11) What is the relation between the fusing current and the diameter of the wire?
a) $I = k d^3$ b) $I = k d^{3/2}$
c) $I = k d^2$ d) $I = k d^{2/3}$
- 12) Differential relays are used for the protection of equipment's against _____
a) Internal faults b) Over-current
c) Reverse current d) Reverse
- 13) Relay is preferred for phase fault on short transmission line.
a) Induction type b) Reactance
c) Impedance d) None of the above
- 14) Which of the following relay has inherent directional characteristics?
a) Mho relay b) Impedance relay
c) Reactance relay d) Distance

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any Four. **16**

- a) What are the advantages of static relay over electromagnetic relay?
- b) What do you mean by zones of protection? Explain primary and backup protection.
- c) What are the factors affecting the selection of fuse?
- d) Explain the following terms
 - i) Fuse element
 - ii) Fusing factor
 - iii) Arcing and pre arcing time
 - iv) Cut-off current
- e) Explain how reactance relay is used for distance protection? Draw its characteristics on R-X diagram.
- f) Describe microprocessor based reactance relay with block diagram.

Q.3 Solve any Two. **12**

- a) Describe microprocessor based mho & offset mho relay with block diagram.
- b) With a neat sketch explain electromagnetic induction relay.
- c) Determine the time of operation of an IDMT relay rating 5A and having setting of 125% and TSM = 0.5. The relay is connected through C.T. of 400/5A. The fault current is 4000A. The operating time for PSM of 8 is 3.2 Second.

Section – II

Q.4 Solve any Four. **16**

- a) Explain differential protection scheme used for transformer.
- b) Explain restricted earth fault protection scheme used for generator.
- c) Explain current zero interruption method of arc in circuit breaker.
- d) Explain arcing phenomenon in circuit breaker.
- e) With suitable diagram explain construction & operation of vacuum circuit breaker.
- f) Explain the causes of over voltages in power system.

Q.5 Solve any Two. **12**

- a) Explain differential protection of bus bar with neat diagram.
- b) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
- c) Explain the phenomenon of capacitive current interruption in circuit breaker with suitable waveforms.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer

14

- 1) What is the arc voltage in a circuit breaker?
 - a) In phase with the arc current
 - b) Lagging the arc current by 90°
 - c) Leading the arc current by 90°
 - d) Lagging the arcing current by 180°
- 2) Circuit breakers usually operate under _____
 - a) Steady short circuit current
 - b) Sub transient state of short circuit current
 - c) Transient state of short circuit current
 - d) None of these
- 3) What is the advantage of using oil as the arc quenching medium?
 - a) Good cooling properties
 - b) High dielectric strength
 - c) Acts as an insulator
 - d) All of these
- 4) The protection against over-voltage due to lightning is provided by _____
 - a) Use of surge diverters
 - b) Low tower footing resistance
 - c) Use of overhead ground wires
 - d) Any of the above
- 5) On what factor does the operating speed of the relay depend?
 - a) Rate of flux built up
 - b) Armature core air gap
 - c) Spring tension
 - d) All of these
- 6) The relay with inverse time characteristic will operate within _____
 - a) 1.5 sec
 - b) 5 to 10 sec
 - c) 5 to 20 sec
 - d) 20 to 30 sec
- 7) The operation speed of a relay depends on _____
 - a) Rate of flux buildup
 - b) Armature core air gap
 - c) Spring tension
 - d) All the above
- 8) What is the relation between the fusing current and the diameter of the wire?
 - a) $I = k d^3$
 - b) $I = k d^{3/2}$
 - c) $I = k d^2$
 - d) $I = k d^{2/3}$

- 9) Differential relays are used for the protection of equipment's against _____
- a) Internal faults
 - b) Over-current
 - c) Reverse current
 - d) Reverse
- 10) Relay is preferred for phase fault on short transmission line.
- a) Induction type
 - b) Reactance
 - c) Impedance
 - d) None of the above
- 11) Which of the following relay has inherent directional characteristics?
- a) Mho relay
 - b) Impedance relay
 - c) Reactance relay
 - d) Distance
- 12) Which of the following ratings of the transformer differential protection is recommended?
- a) Above 30 kVA
 - b) Equal to and above 5 MVA
 - c) Equal to and above 25 MVA
 - d) None of the above
- 13) In a single bus-bar system there will be complete shut down when _____
- a) Fault occurs on the bus itself
 - b) Fault occurs on neutral line
 - c) Two or more faults occur simultaneously
 - d) Fault occurs with respect to earthing
- 14) Rate of rise of restriking voltage depend on _____
- a) Type of circuit breaker
 - b) Capacitance of the system
 - c) Inductance of the system
 - d) Both (b) and (c)

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any Four. **16**

- a) What are the advantages of static relay over electromagnetic relay?
- b) What do you mean by zones of protection? Explain primary and backup protection.
- c) What are the factors affecting the selection of fuse?
- d) Explain the following terms
 - i) Fuse element
 - ii) Fusing factor
 - iii) Arcing and pre arcing time
 - iv) Cut-off current
- e) Explain how reactance relay is used for distance protection? Draw its characteristics on R-X diagram.
- f) Describe microprocessor based reactance relay with block diagram.

Q.3 Solve any Two. **12**

- a) Describe microprocessor based mho & offset mho relay with block diagram.
- b) With a neat sketch explain electromagnetic induction relay.
- c) Determine the time of operation of an IDMT relay rating 5A and having setting of 125% and TSM = 0.5. The relay is connected through C.T. of 400/5A. The fault current is 4000A. The operating time for PSM of 8 is 3.2 Second.

Section – II

Q.4 Solve any Four. **16**

- a) Explain differential protection scheme used for transformer.
- b) Explain restricted earth fault protection scheme used for generator.
- c) Explain current zero interruption method of arc in circuit breaker.
- d) Explain arcing phenomenon in circuit breaker.
- e) With suitable diagram explain construction & operation of vacuum circuit breaker.
- f) Explain the causes of over voltages in power system.

Q.5 Solve any Two. **12**

- a) Explain differential protection of bus bar with neat diagram.
- b) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
- c) Explain the phenomenon of capacitive current interruption in circuit breaker with suitable waveforms.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct answer

14

- 1) Relay is preferred for phase fault on short transmission line.
 - a) Induction type
 - b) Reactance
 - c) Impedance
 - d) None of the above
- 2) Which of the following relay has inherent directional characteristics?
 - a) Mho relay
 - b) Impedance relay
 - c) Reactance relay
 - d) Distance
- 3) Which of the following ratings of the transformer differential protection is recommended?
 - a) Above 30 kVA
 - b) Equal to and above 5 MVA
 - c) Equal to and above 25 MVA
 - d) None of the above
- 4) In a single bus-bar system there will be complete shut down when _____.
 - a) Fault occurs on the bus itself
 - b) Fault occurs on neutral line
 - c) Two or more faults occur simultaneously
 - d) Fault occurs with respect to earthing
- 5) Rate of rise of restriking voltage depend on _____.
 - a) Type of circuit breaker
 - b) Capacitance of the system
 - c) Inductance of the system
 - d) Both (b) and (c)
- 6) What is the arc voltage in a circuit breaker?
 - a) In phase with the arc current
 - b) Lagging the arc current by 90°
 - c) Leading the arc current by 90°
 - d) Lagging the arcing current by 180°
- 7) Circuit breakers usually operate under _____.
 - a) Steady short circuit current
 - b) Sub transient state of short circuit current
 - c) Transient state of short circuit current
 - d) None of these
- 8) What is the advantage of using oil as the arc quenching medium?
 - a) Good cooling properties
 - b) High dielectric strength
 - c) Acts as an insulator
 - d) All of these

- 9) The protection against over-voltage due to lightning is provided by _____
a) Use of surge diverters b) Low tower footing resistance
c) Use of overhead ground wires d) Any of the above
- 10) On what factor does the operating speed of the relay depend?
a) Rate of flux built up b) Armature core air gap
c) Spring tension d) All of these
- 11) The relay with inverse time characteristic will operate within _____
a) 1.5 sec b) 5 to 10 sec
c) 5 to 20 sec d) 20 to 30 sec
- 12) The operation speed of a relay depends on _____
a) Rate of flux buildup b) Armature core air gap
c) Spring tension d) All the above
- 13) What is the relation between the fusing current and the diameter of the wire?
a) $I = k d^3$ b) $I = k d^{3/2}$
c) $I = k d^2$ d) $I = k d^{2/3}$
- 14) Differential relays are used for the protection of equipment's against _____
a) Internal faults b) Over-current
c) Reverse current d) Reverse

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem-I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Switchgear and Protection (197045704)

Day & Date: Saturday, 18-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.

Section – I

Q.2 Solve any Four. **16**

- a) What are the advantages of static relay over electromagnetic relay?
- b) What do you mean by zones of protection? Explain primary and backup protection.
- c) What are the factors affecting the selection of fuse?
- d) Explain the following terms
 - i) Fuse element
 - ii) Fusing factor
 - iii) Arcing and pre arcing time
 - iv) Cut-off current
- e) Explain how reactance relay is used for distance protection? Draw its characteristics on R-X diagram.
- f) Describe microprocessor based reactance relay with block diagram.

Q.3 Solve any Two. **12**

- a) Describe microprocessor based mho & offset mho relay with block diagram.
- b) With a neat sketch explain electromagnetic induction relay.
- c) Determine the time of operation of an IDMT relay rating 5A and having setting of 125% and TSM = 0.5. The relay is connected through C.T. of 400/5A. The fault current is 4000A. The operating time for PSM of 8 is 3.2 Second.

Section – II

Q.4 Solve any Four. **16**

- a) Explain differential protection scheme used for transformer.
- b) Explain restricted earth fault protection scheme used for generator.
- c) Explain current zero interruption method of arc in circuit breaker.
- d) Explain arcing phenomenon in circuit breaker.
- e) With suitable diagram explain construction & operation of vacuum circuit breaker.
- f) Explain the causes of over voltages in power system.

Q.5 Solve any Two. **12**

- a) Explain differential protection of bus bar with neat diagram.
- b) With suitable diagram explain construction & operation of SF6 circuit breaker. Also state its advantages and disadvantages.
- c) Explain the phenomenon of capacitive current interruption in circuit breaker with suitable waveforms.

Seat
No.**Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024**
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.**14**

- 1) In the given options, the non-commercial source of energy is _____.
 - a) Coal
 - b) Lignite
 - c) Firewood
 - d) Refined petroleum products
- 2) Reactive power is measured in terms of _____.
 - a) KW
 - b) KVA
 - c) KVAR
 - d) None of these
- 3) One unit of electricity is equivalent to _____ kcal heat units.
 - a) 800
 - b) 860
 - c) 400
 - d) 680
- 4) Which instrument is used to monitor O₂, CO in flue gas?
 - a) Combustion analyzer
 - b) Power analyzer
 - c) Pyrometer
 - d) Fyrite
- 5) Non-contact speed measurements can be carried out by _____.
 - a) Tachometer
 - b) Stroboscope
 - c) Oscilloscope
 - d) Speedometer
- 6) Sankey diagram shows in graphics _____.
 - a) Energy input
 - b) Energy output
 - c) Energy balance
 - d) All of the above
- 7) The support for energy management is expressed in a formal written declaration of commitment. This is called _____.
 - a) Company policy
 - b) Management policy
 - c) Energy policy
 - d) Energy efficiency
- 8) The force field analysis in energy action planning deals with barrier having _____.
 - a) Positive force only
 - b) Negative force only
 - c) Both negative and positive force
 - d) No force

- 9) Energy manager should be well versed with _____.
a) Manufacturing and processing skills
b) Managerial and technical skills
c) Technical and marketing skills
d) Managerial and Commercial Skills
- 10) The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of _____.
a) Energy conservation
b) Energy management
c) Energy policy
d) Energy Audit
- 11) Acid rain is caused by the release of the following components from combustion of fuels.
a) SO_x and NO_x
b) SO_x and CO₂
c) CO₂ and NO_x
d) H₂O
- 12) Power factor of a load can be improved by using _____.
a) Static capacitors
b) Synchronous condenser
c) neither a) or b)
d) All of the above
- 13) The capital cost of generating equipment, transmission system and distribution system comes under _____.
a) Fixed capital
b) Running capital
c) Both fixed and running capital
d) All of these
- 14) Demand Side Management is required to _____.
a) Reduce overall cost of installed capacity
b) Reduce needs of peaking station
c) Ensure quality and equity of supply
d) All of the above

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four. 16**
- a) Write Short notes on Kyoto Protocol.
 - b) Explain the role of automatic meter reading in utility energy management.
 - c) What are the necessary Skills of energy Manager?
 - d) What is the energy conservation and its important?
 - e) Define the following terms in Details:
 - i) Primary and Secondary Energy
 - ii) Commercial and Non Commercial.

- Q.3 Solve Any Two. 12**
- a) Write a short note on solar thermal technology as energy source.
 - b) What are the Duties and Responsibilities of energy Manager?
 - c) Explain the Indian Electricity Act,2003

Section – II

- Q.4 Solve any Four. 16**
- a) Explain various instruments with Function of each used to carryout energy Audit.
 - b) Write a short note on Break Even Analysis.
 - c) Write a note on Simple Payback Period.
 - d) Explain the need of Energy Audit.
 - e) What is co-generation? How co-generation leads to energy conservation?
- Q.5 Solve Any Two. 12**
- a) Explain the Sankey Diagram with Diagram.
 - b) Explain the various types of Energy Audit.
 - c) Explain the opportunities for energy conservation in Illumination.

Seat No.	
-----------------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The force field analysis in energy action planning deals with barrier having ____.
 - a) Positive force only
 - b) Negative force only
 - c) Both negative and positive force
 - d) No force
- 2) Energy manger should be well versed with _____.
 - a) Manufacturing and processing skills
 - b) Managerial and technical skills
 - c) Technical and marketing skills
 - d) Managerial and Commercial Skills
- 3) The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of _____.
 - a) Energy conservation
 - b) Energy management
 - c) Energy policy
 - d) Energy Audit
- 4) Acid rain is caused by the release of the following components from combustion of fuels.
 - a) SO_x and NO_x
 - b) Sox and CO₂
 - c) CO₂ and NO_x
 - d) H₂O
- 5) Power factor of a load can be improved by using _____.
 - a) Static capacitors
 - b) Synchronous condenser
 - c) neither a) or b)
 - d) All of the above
- 6) The capital cost of generating equipment, transmission system and distribution system comes under _____.
 - a) Fixed capital
 - b) Running capital
 - c) Both fixed and running capital
 - d) All of these

- 7) Demand Side Management is required to _____.
a) Reduce overall cost of installed capacity
b) Reduce needs of peaking station
c) Ensure quality and equity of supply
d) All of the above
- 8) In the given options, the non-commercial source of energy is _____.
a) Coal
b) Lignite
c) Firewood
d) Refined petroleum products
- 9) Reactive power is measured in terms of _____.
a) KW
b) KVA
c) KVAR
d) None of these
- 10) One unit of electricity is equivalent to _____ kcal heat units.
a) 800
b) 860
c) 400
d) 680
- 11) Which instrument is used to monitor O₂, CO in flue gas?
a) Combustion analyzer
b) Power analyzer
c) Pyrometer
d) Fyrite
- 12) Non-contact speed measurements can be carried out by _____.
a) Tachometer
b) Stroboscope
c) Oscilloscope
d) Speedometer
- 13) Sankey diagram shows in graphics _____.
a) Energy input
b) Energy output
c) Energy balance
d) All of the above
- 14) The support for energy management is expressed in a formal written declaration of commitment. This is called _____.
a) Company policy
b) Management policy
c) Energy policy
d) Energy efficiency

Seat No.	
-----------------	--

Set Q

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four. 16

- a) Write Short notes on Kyoto Protocol.
- b) Explain the role of automatic meter reading in utility energy management.
- c) What are the necessary Skills of energy Manager?
- d) What is the energy conservation and its important?
- e) Define the following terms in Details:
 - i) Primary and Secondary Energy
 - ii) Commercial and Non Commercial.

Q.3 Solve Any Two. 12

- a) Write a short note on solar thermal technology as energy source.
- b) What are the Duties and Responsibilities of energy Manager?
- c) Explain the Indian Electricity Act,2003

Section – II

Q.4 Solve any Four. 16

- a) Explain various instruments with Function of each used to carryout energy Audit.
- b) Write a short note on Break Even Analysis.
- c) Write a note on Simple Payback Period.
- d) Explain the need of Energy Audit.
- e) What is co-generation? How co-generation leads to energy conservation?

Q.5 Solve Any Two. 12

- a) Explain the Sankey Diagram with Diagram.
- b) Explain the various types of Energy Audit.
- c) Explain the opportunities for energy conservation in Illumination.

Seat No.	
----------	--

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Acid rain is caused by the release of the following components from combustion of fuels.

a) SO _x and NO _x	b) SO _x and CO ₂
c) CO ₂ and NO _x	d) H ₂ O
- 2) Power factor of a load can be improved by using _____.

a) Static capacitors	b) Synchronous condenser
c) neither a) or b)	d) All of the above
- 3) The capital cost of generating equipment, transmission system and distribution system comes under _____.

a) Fixed capital	b) Running capital
c) Both fixed and running capital	d) All of these
- 4) Demand Side Management is required to _____.

a) Reduce overall cost of installed capacity	b) Reduce needs of peaking station
c) Ensure quality and equity of supply	d) All of the above
- 5) In the given options, the non-commercial source of energy is _____.

a) Coal	b) Lignite
c) Firewood	d) Refined petroleum products
- 6) Reactive power is measured in terms of _____.

a) KW	b) KVA
c) KVAR	d) None of these
- 7) One unit of electricity is equivalent to _____ kcal heat units.

a) 800	b) 860
c) 400	d) 680

- 8) Which instrument is used to monitor O₂, CO in flue gas?
a) Combustion analyzer b) Power analyzer
c) Pyrometer d) Fyrite
- 9) Non-contact speed measurements can be carried out by _____.
a) Tachometer b) Stroboscope
c) Oscilloscope d) Speedometer
- 10) Sankey diagram shows in graphics _____.
a) Energy input b) Energy output
c) Energy balance d) All of the above
- 11) The support for energy management is expressed in a formal written declaration of commitment. This is called _____.
a) Company policy b) Management policy
c) Energy policy d) Energy efficiency
- 12) The force field analysis in energy action planning deals with barrier having _____.
a) Positive force only
b) Negative force only
c) Both negative and positive force
d) No force
- 13) Energy manager should be well versed with _____.
a) Manufacturing and processing skills
b) Managerial and technical skills
c) Technical and marketing skills
d) Managerial and Commercial Skills
- 14) The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of _____.
a) Energy conservation b) Energy management
c) Energy policy d) Energy Audit

Seat No.	
-----------------	--

**Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING**

Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four. 16**
- a) Write Short notes on Kyoto Protocol.
 - b) Explain the role of automatic meter reading in utility energy management.
 - c) What are the necessary Skills of energy Manager?
 - d) What is the energy conservation and its important?
 - e) Define the following terms in Details:
 - i) Primary and Secondary Energy
 - ii) Commercial and Non Commercial.

- Q.3 Solve Any Two. 12**
- a) Write a short note on solar thermal technology as energy source.
 - b) What are the Duties and Responsibilities of energy Manager?
 - c) Explain the Indian Electricity Act,2003

Section – II

- Q.4 Solve any Four. 16**
- a) Explain various instruments with Function of each used to carryout energy Audit.
 - b) Write a short note on Break Even Analysis.
 - c) Write a note on Simple Payback Period.
 - d) Explain the need of Energy Audit.
 - e) What is co-generation? How co-generation leads to energy conservation?
- Q.5 Solve Any Two. 12**
- a) Explain the Sankey Diagram with Diagram.
 - b) Explain the various types of Energy Audit.
 - c) Explain the opportunities for energy conservation in Illumination.

Seat No.	
-----------------	--

Set S

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.**14**

- 1) Sankey diagram shows in graphics _____.
a) Energy input b) Energy output
c) Energy balance d) All of the above
- 2) The support for energy management is expressed in a formal written declaration of commitment. This is called _____.
a) Company policy b) Management policy
c) Energy policy d) Energy efficiency
- 3) The force field analysis in energy action planning deals with barrier having _____.
a) Positive force only
b) Negative force only
c) Both negative and positive force
d) No force
- 4) Energy manager should be well versed with _____.
a) Manufacturing and processing skills
b) Managerial and technical skills
c) Technical and marketing skills
d) Managerial and Commercial Skills
- 5) The judicious and effective use of energy to maximize profits and enhance competitive positions”. This can be the definition of _____.
a) Energy conservation b) Energy management
c) Energy policy d) Energy Audit
- 6) Acid rain is caused by the release of the following components from combustion of fuels.
a) SOx and NOx b) Sox and CO₂
c) CO₂ and NOx d) H₂O
- 7) Power factor of a load can be improved by using _____.
a) Static capacitors b) Synchronous condenser
c) neither a) or b) d) All of the above

- 8) The capital cost of generating equipment, transmission system and distribution system comes under _____.
a) Fixed capital
b) Running capital
c) Both fixed and running capital
d) All of these
- 9) Demand Side Management is required to _____.
a) Reduce overall cost of installed capacity
b) Reduce needs of peaking station
c) Ensure quality and equity of supply
d) All of the above
- 10) In the given options, the non-commercial source of energy is _____.
a) Coal
b) Lignite
c) Firewood
d) Refined petroleum products
- 11) Reactive power is measured in terms of _____.
a) KW
b) KVA
c) KVAR
d) None of these
- 12) One unit of electricity is equivalent to _____ kcal heat units.
a) 800
b) 860
c) 400
d) 680
- 13) Which instrument is used to monitor O₂, CO in flue gas?
a) Combustion analyzer
b) Power analyzer
c) Pyrometer
d) Fyrite
- 14) Non-contact speed measurements can be carried out by _____.
a) Tachometer
b) Stroboscope
c) Oscilloscope
d) Speedometer

Seat No.	
-----------------	--

Set	S
------------	----------

Fourth. Y. (B.Tech.) (Sem-I) (Old)(CBCS) Examination: March/April - 2024
ELECTRICAL ENGINEERING
Energy Audit and Management (197045707)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four. 16

- Write Short notes on Kyoto Protocol.
- Explain the role of automatic meter reading in utility energy management.
- What are the necessary Skills of energy Manager?
- What is the energy conservation and its important?
- Define the following terms in Details:
 - Primary and Secondary Energy
 - Commercial and Non Commercial.

Q.3 Solve Any Two. 12

- Write a short note on solar thermal technology as energy source.
- What are the Duties and Responsibilities of energy Manager?
- Explain the Indian Electricity Act,2003

Section – II

Q.4 Solve any Four. 16

- Explain various instruments with Function of each used to carryout energy Audit.
- Write a short note on Break Even Analysis.
- Write a note on Simple Payback Period.
- Explain the need of Energy Audit.
- What is co-generation? How co-generation leads to energy conservation?

Q.5 Solve Any Two. 12

- Explain the Sankey Diagram with Diagram.
- Explain the various types of Energy Audit.
- Explain the opportunities for energy conservation in Illumination.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Separate answer books for each section.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Autocorrelation is defined with _____.
 a) $\sum_{h=-\infty}^{\infty} x(h)y(h-l)$ b) $\sum_{h=-\infty}^{\infty} x(n)x(n-l)$
 c) $\sum_{h=-\infty}^{\infty} x(k)y(h-k)$ d) None of the above
- 2) $X(0)$ value of 5 point sequence $x(n) = \{1, 4, 6, 8, 10\}$ is _____.
 a) 21 b) 22
 c) 29 d) None
- 3) Multiplication is required to compute N point DFT _____.
 a) N b) $N(N-1)$
 c) N^2 d) N^3
- 4) With zero padding DFT is used as _____.
 a) Circular filtering b) Linear filtering
 c) FFT calculations d) Overlap add method
- 5) The size of input data blocks in the overlap-add method is _____.
 a) L b) $L+M$
 c) $L+M+1$ d) $L+M-1$
- 6) If the sequence $x(n)$ is real & odd the its corresponding DFT values are _____.
 a) Imaginary and odd b) Imaginary and even
 c) Real and Even d) None
- 7) When a sequence is circularly shifted in time by 5 units, the magnitude response _____.
 a) Increase by 5 b) Remain unchanged
 c) Shift by 5 units d) None

- 8) The frequency sampling structure is efficient because _____.
 a) Sample points are less
 b) Some sampled DFT coefficients are zero when the filter is a narrow band
 c) Some sampled values can be assumed zero
 d) Parallel structures are efficient
- 9) For the impulse response of the FIR filter to satisfy constant group delay, the phase is given by _____.
 a) $\theta(w) = -\alpha w$
 b) $\theta(w) = \alpha w$
 c) $\theta(w) = \beta - \alpha w$
 d) $\theta(w) = 0$
- 10) FIR filter is always stable because _____.
 a) All its poles are at origin
 b) All its zeros are at origin
 c) $h(n) = h(N - 1 - n)$
 d) None
- 11) Which of the following mapping is true between the s-plane and z-domain?
 a) Points in LHP of the s-plane into points inside the circle in the z-domain
 b) Points in RHP of the s-plane into points outside the circle in the z-domain
 c) Points on the imaginary axis of the s-plane into points onto the circle in z-domain
 d) All of the mentioned
- 12) Poles of Butterworth filter lies on _____.
 a) Ellipse
 b) Circle
 c) Parabola
 d) None
- 13) The mapping of s-plane to z-plane in bilinear transformation is _____.
 a) $S = \frac{2}{3T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 b) $S = \frac{2}{T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 c) $S = \frac{2}{T} \left[\frac{1 + z^{-1}}{1 - z^{-1}} \right]$
 d) None
- 14) In the IIR system, which of the following structure will give direct relation between the time domain and Z domain.
 a) Direct form I
 b) Direct form II
 c) Cascade form
 d) Parallel form

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.
 5) Separate answer books for each section.

Section – I

Q.2 Attempt any Four of the following. 16

- Find cross-correlation of sequence $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
- Find IDFT of $X(k) = \{16, -4 + 2j, -4, -4, -2j\}$
- List the properties of DFT & explain the circular convolution properties of DFT.
- Explain DSP Architecture and how it can be used for the measurement of electrical quantities.

Q.3 Attempt any Two of the following. 12

- Find linear convolution Using the overlap save method, of the following sequence $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- Write in detail the properties of Discrete Wavelet Transform
- Write a note on DWT.

Section – II

Q.4 Attempt any Four of the following. 16

- List down the design steps in implementing the IIR filter.
- What are finite word length effects in the FIR filter?
- State the advantage of digital filter over Analog filter.
- What is the warping effect? What is its effect on magnitude and phase response?
- Write a note on the LMS Algorithm.

Q.5 Attempt any Two of the following 12

- Explain in detail Adaptive Signal Processing.
- Design seven coefficients FIR LPF using frequency sampling method with the following specifications $H_d(e^{jw}) = e^{-j(N-1)w/2}$ for $0 \leq w \leq \pi/2$
 $= 0$ for $\pi/2 \leq w \leq \pi$
- Using Bilinear transformation obtain $H(z)$ if $\frac{2}{(s+2)(s+1)}$ and $T = 1$ sec.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Separate answer books for each section.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) The frequency sampling structure is efficient because _____.
 - a) Sample points are less
 - b) Some sampled DFT coefficients are zero when the filter is a narrow band
 - c) Some sampled values can be assumed zero
 - d) Parallel structures are efficient
- 2) For the impulse response of the FIR filter to satisfy constant group delay, the phase is given by _____.
 - a) $\theta(\omega) = -\alpha\omega$
 - b) $\theta(\omega) = \alpha\omega$
 - c) $\theta(\omega) = \beta - \alpha\omega$
 - d) $\theta(\omega) = 0$
- 3) FIR filter is always stable because _____.
 - a) All its poles are at origin
 - b) All its zeros are at origin
 - c) $h(n) = h(N - 1 - n)$
 - d) None
- 4) Which of the following mapping is true between the s-plane and z-domain?
 - a) Points in LHP of the s-plane into points inside the circle in the z-domain
 - b) Points in RHP of the s-plane into points outside the circle in the z-domain
 - c) Points on the imaginary axis of the s-plane into points onto the circle in z-domain
 - d) All of the mentioned
- 5) Poles of Butterworth filter lies on _____.
 - a) Ellipse
 - b) Circle
 - c) Parabola
 - d) None
- 6) The mapping of s-plane to z-plane in bilinear transformation is _____.
 - a) $S = \frac{2}{3T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 - b) $S = \frac{2}{T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 - c) $S = \frac{2}{T} \left[\frac{1 + z^{-1}}{1 - z^{-1}} \right]$
 - d) None

- 7) In the IIR system, which of the following structure will give direct relation between the time domain and Z domain.
- | | |
|------------------|-------------------|
| a) Direct form I | b) Direct form II |
| c) Cascade form | d) Parallel form |
- 8) Autocorrelation is defined with _____.
- | | |
|-------------------------------------------|-------------------------------------------|
| a) $\sum_{h=-\infty}^{\infty} x(h)y(h-l)$ | b) $\sum_{h=-\infty}^{\infty} x(n)x(n-l)$ |
| c) $\sum_{h=-\infty}^{\infty} x(k)y(h-k)$ | d) None of the above |
- 9) $X(0)$ value of 5 point sequence $x(n) = \{1, 4, 6, 8, 10\}$ is _____.
- | | |
|-------|---------|
| a) 21 | b) 22 |
| c) 29 | d) None |
- 10) Multiplication is required to compute N point DFT _____.
- | | |
|----------|-------------|
| a) N | b) $N(N-1)$ |
| c) N^2 | d) N^3 |
- 11) With zero padding DFT is used as _____.
- | | |
|-----------------------|-----------------------|
| a) Circular filtering | b) Linear filtering |
| c) FFT calculations | d) Overlap add method |
- 12) The size of input data blocks in the overlap-add method is _____.
- | | |
|------------|------------|
| a) L | b) $L+M$ |
| c) $L+M+1$ | d) $L+M-1$ |
- 13) If the sequence $x(n)$ is real & odd the its corresponding DFT values are _____.
- | | |
|----------------------|-----------------------|
| a) Imaginary and odd | b) Imaginary and even |
| c) Real and Even | d) None |
- 14) When a sequence is circularly shifted in time by 5 units, the magnitude response _____.
- | | |
|---------------------|---------------------|
| a) Increase by 5 | b) Remain unchanged |
| c) Shift by 5 units | d) None |

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.
 5) Separate answer books for each section.

Section – I

Q.2 Attempt any Four of the following. 16

- Find cross-correlation of sequence $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
- Find IDFT of $X(k) = \{16, -4 + 2j, -4, -4, -2j\}$
- List the properties of DFT & explain the circular convolution properties of DFT.
- Explain DSP Architecture and how it can be used for the measurement of electrical quantities.

Q.3 Attempt any Two of the following. 12

- Find linear convolution Using the overlap save method, of the following sequence $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- Write in detail the properties of Discrete Wavelet Transform
- Write a note on DWT.

Section – II

Q.4 Attempt any Four of the following. 16

- List down the design steps in implementing the IIR filter.
- What are finite word length effects in the FIR filter?
- State the advantage of digital filter over Analog filter.
- What is the warping effect? What is its effect on magnitude and phase response?
- Write a note on the LMS Algorithm.

Q.5 Attempt any Two of the following 12

- Explain in detail Adaptive Signal Processing.
- Design seven coefficients FIR LPF using frequency sampling method with the following specifications $H_d(e^{jw}) = e^{-j(N-1)w/2}$ for $0 \leq w \leq \pi/2$
 $= 0$ for $\pi/2 \leq w \leq \pi$
- Using Bilinear transformation obtain $H(z)$ if $\frac{2}{(s+2)(s+1)}$ and $T = 1$ sec.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data wherever needed and mention it clearly.
 5) Separate answer books for each section.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which of the following mapping is true between the s-plane and z-domain?
 - a) Points in LHP of the s-plane into points inside the circle in the z-domain
 - b) Points in RHP of the s-plane into points outside the circle in the z-domain
 - c) Points on the imaginary axis of the s-plane into points onto the circle in z-domain
 - d) All of the mentioned
- 2) Poles of Butterworth filter lies on _____.
 - a) Ellipse
 - b) Circle
 - c) Parabola
 - d) None
- 3) The mapping of s-plane to z-plane in bilinear transformation is _____.
 - a) $S = \frac{2}{3T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 - b) $S = \frac{2}{T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 - c) $S = \frac{2}{T} \left[\frac{1 + z^{-1}}{1 - z^{-1}} \right]$
 - d) None
- 4) In the IIR system, which of the following structure will give direct relation between the time domain and Z domain.
 - a) Direct form I
 - b) Direct form II
 - c) Cascade form
 - d) Parallel form
- 5) Autocorrelation is defined with _____.
 - a) $\sum_{h=-\infty}^{\infty} x(h)y(h-l)$
 - b) $\sum_{h=-\infty}^{\infty} x(n)x(n-l)$
 - c) $\sum_{h=-\infty}^{\infty} x(k)y(h-k)$
 - d) None of the above
- 6) X(0) value of 5 point sequence $x(n) = \{1, 4, 6, 8, 10\}$ is _____.
 - a) 21
 - b) 22
 - c) 29
 - d) None

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.
 5) Separate answer books for each section.

Section – I

Q.2 Attempt any Four of the following. 16

- Find cross-correlation of sequence $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
- Find IDFT of $X(k) = \{16, -4 + 2j, -4, -4, -2j\}$
- List the properties of DFT & explain the circular convolution properties of DFT.
- Explain DSP Architecture and how it can be used for the measurement of electrical quantities.

Q.3 Attempt any Two of the following. 12

- Find linear convolution Using the overlap save method, of the following sequence $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- Write in detail the properties of Discrete Wavelet Transform
- Write a note on DWT.

Section – II

Q.4 Attempt any Four of the following. 16

- List down the design steps in implementing the IIR filter.
- What are finite word length effects in the FIR filter?
- State the advantage of digital filter over Analog filter.
- What is the warping effect? What is its effect on magnitude and phase response?
- Write a note on the LMS Algorithm.

Q.5 Attempt any Two of the following 12

- Explain in detail Adaptive Signal Processing.
- Design seven coefficients FIR LPF using frequency sampling method with the following specifications $H_d(e^{jw}) = e^{-j(N-1)w/2}$ for $0 \leq w \leq \pi/2$
 $= 0$ for $\pi/2 \leq w \leq \pi$
- Using Bilinear transformation obtain $H(z)$ if $\frac{2}{(s+2)(s+1)}$ and $T = 1$ sec.

- 8) The mapping of s-plane to z-plane in bilinear transformation is _____.
 a) $S = \frac{2}{3T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$ b) $S = \frac{2}{T} \left[\frac{1 - z^{-1}}{1 + z^{-1}} \right]$
 c) $S = \frac{2}{T} \left[\frac{1 + z^{-1}}{1 - z^{-1}} \right]$ d) None
- 9) In the IIR system, which of the following structure will give direct relation between the time domain and Z domain.
 a) Direct form I b) Direct form II
 c) Cascade form d) Parallel form
- 10) Autocorrelation is defined with _____.
 a) $\sum_{h=-\infty}^{\infty} x(h)y(h-l)$ b) $\sum_{h=-\infty}^{\infty} x(n)x(n-l)$
 c) $\sum_{h=-\infty}^{\infty} x(k)y(h-k)$ d) None of the above
- 11) $X(0)$ value of 5 point sequence $x(n) = \{1, 4, 6, 8, 10\}$ is _____.
 a) 21 b) 22
 c) 29 d) None
- 12) Multiplication is required to compute N point DFT _____.
 a) N b) $N(N-1)$
 c) N^2 d) N^3
- 13) With zero padding DFT is used as _____.
 a) Circular filtering b) Linear filtering
 c) FFT calculations d) Overlap add method
- 14) The size of input data blocks in the overlap-add method is _____.
 a) L b) $L + M$
 c) $L + M + 1$ d) $L + M - 1$

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.
 5) Separate answer books for each section.

Section – I

Q.2 Attempt any Four of the following. 16

- Find cross-correlation of sequence $x(n) = \{1, 2, 1, 1, -1\}$ and $y(n) = \{1, 1, 2, 1\}$
- The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
- Find IDFT of $X(k) = \{16, -4 + 2j, -4, -4, -2j\}$
- List the properties of DFT & explain the circular convolution properties of DFT.
- Explain DSP Architecture and how it can be used for the measurement of electrical quantities.

Q.3 Attempt any Two of the following. 12

- Find linear convolution Using the overlap save method, of the following sequence $x(n) = \{3, 0, -2, 0, 2, 1, 0, -2, -1, 0, 4, 6, 7\}$ $h(n) = \{2, 2, 1\}$
- Write in detail the properties of Discrete Wavelet Transform
- Write a note on DWT.

Section – II

Q.4 Attempt any Four of the following. 16

- List down the design steps in implementing the IIR filter.
- What are finite word length effects in the FIR filter?
- State the advantage of digital filter over Analog filter.
- What is the warping effect? What is its effect on magnitude and phase response?
- Write a note on the LMS Algorithm.

Q.5 Attempt any Two of the following 12

- Explain in detail Adaptive Signal Processing.
- Design seven coefficients FIR LPF using frequency sampling method with the following specifications $H_d(e^{jw}) = e^{-j(N-1)w/2}$ for $0 \leq w \leq \pi/2$
 $= 0$ for $\pi/2 \leq w \leq \pi$
- Using Bilinear transformation obtain $H(z)$ if $\frac{2}{(s+2)(s+1)}$ and $T = 1$ sec.

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The PLC was invented by _____
- | | |
|----------------|-------------------|
| a) Bills Gates | b) Dick Morley |
| c) Bill Landis | d) Tod Cunningham |
- 2) Figure shows the ladder logic for _____



- | | |
|---------------|----------------|
| a) NAND Gate | b) Ex-NOR Gate |
| c) Ex-OR Gate | d) OR Gate |
- 3) The integral control _____
- | |
|--------------------------------------|
| a) Increases the steady state error |
| b) Decreases the steady state error |
| c) Increases the noise and stability |
| d) Decreases the damping coefficient |
- 4) Which of the following are layers in the TCP/IP model?
1. Application
 2. Session
 3. Transport
 4. Internet
 5. Data Link
 6. Physical
- | | |
|---------------|---------------|
| a) 1 and 2 | b) 1, 3 and 4 |
| c) 2, 3 and 5 | d) 3, 4 and 5 |
- 5) In OSI model layer No. 4 consist of _____
- | | |
|-------------------|--------------------|
| a) Physical layer | b) Data link layer |
| c) Network layer | d) Transport layer |
- 6) To develop a logical AND gate the NO switch should be connected.
- | | |
|----------------|-------------------------|
| a) In series | b) Series & parallel |
| c) In parallel | d) Neither of the above |

- 7) Analog I/O modules deals with _____
- a) Continuously Variables Analog signals
 - b) Discrete Analog Signals
 - c) Continuously Variables digital signals
 - d) Discrete digital Signals
- 8) OSI stands for _____
- a) Open system interconnection
 - b) Operating system interface
 - c) Optical service implementation
 - d) None of the above
- 9) SCADA system is _____
- a) Software
 - b) Hardware
 - c) Combination of Software & Hardware
 - d) None of the above
- 10) Input with a particular terminal number can be used.
- a) Many times in a Program
 - b) Only once in a Program
 - c) Only once in a Rung
 - d) None of the above
- 11) Which of the following protocol used for HVAC control, building automation?
- a) Modbus
 - b) Device Net
 - c) DNP 3.0
 - d) BAC Net
- 12) Ethernet frame consists of _____
- a) MAC address
 - b) IP address
 - c) Both a) and b)
 - d) None of the mentioned
- 13) How do the variations in an average value get affected by PWM period?
- a) Longer the PWM period, faster will be the variation in an average value
 - b) Shorter the PWM period, faster will be the variation in an average value
 - c) Shorter the PWM period, slower will be the variation in an average value
 - d) Longer the PWM period, slower will be the variation in an average value
- 14) A down counter CTD undergoes a count action _____
- a) Each time a rung is true; decreases the accumulated value by one
 - b) Each time a rung is false; decreases the accumulated value by one
 - c) Each time a rung is true; increases the accumulated value by one
 - d) None of these

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. **16**

- a) Define programmable logic controller. Explain central processing unit in detail along with the three important parts in it.
- b) Explain brief history of PLC along with some important names.
- c) Explain Speed control of DC motor with DC Source.
- d) What are the different programming languages used in PLC? Explain each in detail.
- e) Differentiate clearly between ON delay timer and OFF delay timer.
- f) Draw and Explain AND, EX-OR gate using Truth Table.

Q.3 Solve any Two of the following. **12**

- a) Compare merits of ladder logic with relay logic.
- b) Draw the ladder and relay logic diagram for the following table :
 Input - I1, I2
 Output – Q1, Q2, Q3, Q4

I1	I2	Q1	Q2	Q3	Q4
0	0	1	1	1	0
0	1	0	1	1	1
1	0	1	0	1	1
1	1	1	1	0	1

- c) Develop PLC Logic for DC Motor In Forward & Reverse Direction.
 - i) Forward stop Reverse starter
 - ii) Forward Reverse Starter

Section – II

Q.4 Solve any Four of the following. **16**

- a) Explain Device Net protocol in detail.
- b) Explain Second generation SCADA architecture.
- c) Explain IEC61850 layered architecture protocol.
- d) Enlist various application of SCADA in industries Explain any one in details.
- e) What is DNP3 protocol? Explain.

Q.5 Solve any Two of the following. **12**

- a) What is open system Interconnection Protocols? Explain function of each layer in detail. What is the difference between OSI and TCP/ IP Model?
- b) Draw and explain SCADA system in water purification system.
- c) Explain block Diagram of RTU and its functions.

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options.

14

- 1) OSI stands for _____
 - a) Open system interconnection
 - b) Operating system interface
 - c) Optical service implementation
 - d) None of the above
- 2) SCADA system is _____
 - a) Software
 - b) Hardware
 - c) Combination of Software & Hardware
 - d) None of the above
- 3) Input with a particular terminal number can be used.
 - a) Many times in a Program
 - b) Only once in a Program
 - c) Only once in a Rung
 - d) None of the above
- 4) Which of the following protocol used for HVAC control, building automation?
 - a) Modbus
 - b) Device Net
 - c) DNP 3.0
 - d) BAC Net
- 5) Ethernet frame consists of _____
 - a) MAC address
 - b) IP address
 - c) Both a) and b)
 - d) None of the mentioned
- 6) How do the variations in an average value get affected by PWM period?
 - a) Longer the PWM period, faster will be the variation in an average value
 - b) Shorter the PWM period, faster will be the variation in an average value
 - c) Shorter the PWM period, slower will be the variation in an average value
 - d) Longer the PWM period, slower will be the variation in an average value
- 7) A down counter CTD undergoes a count action _____
 - a) Each time a rung is true; decreases the accumulated value by one
 - b) Each time a rung is false; decreases the accumulated value by one
 - c) Each time a rung is true; increases the accumulated value by one
 - d) None of these
- 8) The PLC was invented by _____
 - a) Bills Gates
 - b) Dick Morley
 - c) Bill Landis
 - d) Tod Cunningham

9) Figure shows the ladder logic for _____



- a) NAND Gate
b) Ex-NOR Gate
c) Ex-OR Gate
d) OR Gate
- 10) The integral control _____
a) Increases the steady state error
b) Decreases the steady state error
c) Increases the noise and stability
d) Decreases the damping coefficient
- 11) Which of the following are layers in the TCP/IP model?
1. Application
2. Session
3. Transport
4. Internet
5. Data Link
6. Physical
a) 1 and 2
b) 1, 3 and 4
c) 2, 3 and 5
d) 3, 4 and 5
- 12) In OSI model layer No. 4 consist of _____
a) Physical layer
b) Data link layer
c) Network layer
d) Transport layer
- 13) To develop a logical AND gate the NO switch should be connected.
a) In series
b) Series & parallel
c) In parallel
d) Neither of the above
- 14) Analog I/O modules deals with _____
a) Continuously Variables Analog signals
b) Discrete Analog Signals
c) Continuously Variables digital signals
d) Discrete digital Signals

Seat No.	
----------	--

Set Q

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. **16**

- Define programmable logic controller. Explain central processing unit in detail along with the three important parts in it.
- Explain brief history of PLC along with some important names.
- Explain Speed control of DC motor with DC Source.
- What are the different programming languages used in PLC? Explain each in detail.
- Differentiate clearly between ON delay timer and OFF delay timer.
- Draw and Explain AND, EX-OR gate using Truth Table.

Q.3 Solve any Two of the following. **12**

- Compare merits of ladder logic with relay logic.
- Draw the ladder and relay logic diagram for the following table :
 Input - I1, I2
 Output – Q1, Q2, Q3, Q4

I1	I2	Q1	Q2	Q3	Q4
0	0	1	1	1	0
0	1	0	1	1	1
1	0	1	0	1	1
1	1	1	1	0	1

- Develop PLC Logic for DC Motor In Forward & Reverse Direction.
 - Forward stop Reverse starter
 - Forward Reverse Starter

Section – II

Q.4 Solve any Four of the following. **16**

- Explain Device Net protocol in detail.
- Explain Second generation SCADA architecture.
- Explain IEC61850 layered architecture protocol.
- Enlist various application of SCADA in industries Explain any one in details.
- What is DNP3 protocol? Explain.

Q.5 Solve any Two of the following. **12**

- What is open system Interconnection Protocols? Explain function of each layer in detail. What is the difference between OSI and TCP/ IP Model?
- Draw and explain SCADA system in water purification system.
- Explain block Diagram of RTU and its functions.

Seat No.	
----------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Which of the following protocol used for HVAC control, building automation?
 - a) Modbus
 - b) Device Net
 - c) DNP 3.0
 - d) BAC Net
- 2) Ethernet frame consists of _____
 - a) MAC address
 - b) IP address
 - c) Both a) and b)
 - d) None of the mentioned
- 3) How do the variations in an average value get affected by PWM period?
 - a) Longer the PWM period, faster will be the variation in an average value
 - b) Shorter the PWM period, faster will be the variation in an average value
 - c) Shorter the PWM period, slower will be the variation in an average value
 - d) Longer the PWM period, slower will be the variation in an average value
- 4) A down counter CTD undergoes a count action _____
 - a) Each time a rung is true; decreases the accumulated value by one
 - b) Each time a rung is false; decreases the accumulated value by one
 - c) Each time a rung is true; increases the accumulated value by one
 - d) None of these
- 5) The PLC was invented by _____
 - a) Bills Gates
 - b) Dick Morley
 - c) Bill Landis
 - d) Tod Cunningham
- 6) Figure shows the ladder logic for _____



- a) NAND Gate
- b) Ex-NOR Gate
- c) Ex-OR Gate
- d) OR Gate

- 7) The integral control _____
- a) Increases the steady state error
 - b) Decreases the steady state error
 - c) Increases the noise and stability
 - d) Decreases the damping coefficient
- 8) Which of the following are layers in the TCP/IP model?
- 1. Application
 - 2. Session
 - 3. Transport
 - 4. Internet
 - 5. Data Link
 - 6. Physical
- a) 1 and 2
 - b) 1, 3 and 4
 - c) 2, 3 and 5
 - d) 3, 4 and 5
- 9) In OSI model layer No. 4 consist of _____
- a) Physical layer
 - b) Data link layer
 - c) Network layer
 - d) Transport layer
- 10) To develop a logical AND gate the NO switch should be connected.
- a) In series
 - b) Series & parallel
 - c) In parallel
 - d) Neither of the above
- 11) Analog I/O modules deals with _____
- a) Continuously Variables Analog signals
 - b) Discrete Analog Signals
 - c) Continuously Variables digital signals
 - d) Discrete digital Signals
- 12) OSI stands for _____
- a) Open system interconnection
 - b) Operating system interface
 - c) Optical service implementation
 - d) None of the above
- 13) SCADA system is _____
- a) Software
 - b) Hardware
 - c) Combination of Software & Hardware
 - d) None of the above
- 14) Input with a particular terminal number can be used.
- a) Many times in a Program
 - b) Only once in a Program
 - c) Only once in a Rung
 - d) None of the above

Seat No.	
----------	--

Set **R**

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. **16**

- a) Define programmable logic controller. Explain central processing unit in detail along with the three important parts in it.
- b) Explain brief history of PLC along with some important names.
- c) Explain Speed control of DC motor with DC Source.
- d) What are the different programming languages used in PLC? Explain each in detail.
- e) Differentiate clearly between ON delay timer and OFF delay timer.
- f) Draw and Explain AND, EX-OR gate using Truth Table.

Q.3 Solve any Two of the following. **12**

- a) Compare merits of ladder logic with relay logic.
- b) Draw the ladder and relay logic diagram for the following table :
 Input - I1, I2
 Output – Q1, Q2, Q3, Q4

I1	I2	Q1	Q2	Q3	Q4
0	0	1	1	1	0
0	1	0	1	1	1
1	0	1	0	1	1
1	1	1	1	0	1

- c) Develop PLC Logic for DC Motor In Forward & Reverse Direction.
 - i) Forward stop Reverse starter
 - ii) Forward Reverse Starter

Section – II

Q.4 Solve any Four of the following. **16**

- a) Explain Device Net protocol in detail.
- b) Explain Second generation SCADA architecture.
- c) Explain IEC61850 layered architecture protocol.
- d) Enlist various application of SCADA in industries Explain any one in details.
- e) What is DNP3 protocol? Explain.

Q.5 Solve any Two of the following. **12**

- a) What is open system Interconnection Protocols? Explain function of each layer in detail. What is the difference between OSI and TCP/ IP Model?
- b) Draw and explain SCADA system in water purification system.
- c) Explain block Diagram of RTU and its functions.

Seat No.	
-------------	--

Set **S**

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the given options. 14

- 1) To develop a logical AND gate the NO switch should be connected.
 - a) In series
 - b) Series & parallel
 - c) In parallel
 - d) Neither of the above
- 2) Analog I/O modules deals with _____
 - a) Continuously Variables Analog signals
 - b) Discrete Analog Signals
 - c) Continuously Variables digital signals
 - d) Discrete digital Signals
- 3) OSI stands for _____
 - a) Open system interconnection
 - b) Operating system interface
 - c) Optical service implementation
 - d) None of the above
- 4) SCADA system is _____
 - a) Software
 - b) Hardware
 - c) Combination of Software & Hardware
 - d) None of the above
- 5) Input with a particular terminal number can be used.
 - a) Many times in a Program
 - b) Only once in a Program
 - c) Only once in a Rung
 - d) None of the above
- 6) Which of the following protocol used for HVAC control, building automation?
 - a) Modbus
 - b) Device Net
 - c) DNP 3.0
 - d) BAC Net
- 7) Ethernet frame consists of _____
 - a) MAC address
 - b) IP address
 - c) Both a) and b)
 - d) None of the mentioned
- 8) How do the variations in an average value get affected by PWM period?
 - a) Longer the PWM period, faster will be the variation in an average value
 - b) Shorter the PWM period, faster will be the variation in an average value
 - c) Shorter the PWM period, slower will be the variation in an average value
 - d) Longer the PWM period, slower will be the variation in an average value

- 9) A down counter CTD undergoes a count action _____
- Each time a rung is true; decreases the accumulated value by one
 - Each time a rung is false; decreases the accumulated value by one
 - Each time a rung is true; increases the accumulated value by one
 - None of these
- 10) The PLC was invented by _____
- Bills Gates
 - Dick Morley
 - Bill Landis
 - Tod Cunningham
- 11) Figure shows the ladder logic for _____



- NAND Gate
 - Ex-NOR Gate
 - Ex-OR Gate
 - OR Gate
- 12) The integral control _____
- Increases the steady state error
 - Decreases the steady state error
 - Increases the noise and stability
 - Decreases the damping coefficient
- 13) Which of the following are layers in the TCP/IP model?
- Application
 - Session
 - Transport
 - Internet
 - Data Link
 - Physical
- 1 and 2
 - 2, 3 and 5
 - 1, 3 and 4
 - 3, 4 and 5
- 14) In OSI model layer No. 4 consist of _____
- Physical layer
 - Data link layer
 - Network layer
 - Transport layer

Seat No.	
----------	--

Set	S
-----	---

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Programmable Logic Control and SCADA (197045709)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four of the following. **16**

- a) Define programmable logic controller. Explain central processing unit in detail along with the three important parts in it.
- b) Explain brief history of PLC along with some important names.
- c) Explain Speed control of DC motor with DC Source.
- d) What are the different programming languages used in PLC? Explain each in detail.
- e) Differentiate clearly between ON delay timer and OFF delay timer.
- f) Draw and Explain AND, EX-OR gate using Truth Table.

Q.3 Solve any Two of the following. **12**

- a) Compare merits of ladder logic with relay logic.
- b) Draw the ladder and relay logic diagram for the following table :
Input - I1, I2
Output – Q1, Q2, Q3, Q4

I1	I2	Q1	Q2	Q3	Q4
0	0	1	1	1	0
0	1	0	1	1	1
1	0	1	0	1	1
1	1	1	1	0	1

- c) Develop PLC Logic for DC Motor In Forward & Reverse Direction.
 - i) Forward stop Reverse starter
 - ii) Forward Reverse Starter

Section – II

Q.4 Solve any Four of the following. **16**

- a) Explain Device Net protocol in detail.
- b) Explain Second generation SCADA architecture.
- c) Explain IEC61850 layered architecture protocol.
- d) Enlist various application of SCADA in industries Explain any one in details.
- e) What is DNP3 protocol? Explain.

Q.5 Solve any Two of the following. **12**

- a) What is open system Interconnection Protocols? Explain function of each layer in detail. What is the difference between OSI and TCP/ IP Model?
- b) Draw and explain SCADA system in water purification system.
- c) Explain block Diagram of RTU and its functions.

Seat No.	
-----------------	--

**Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) As compared to air the relative dielectric strength of Sulphur hexafluoride is nearly _____
 - a) 1.5 times
 - b) 2.5 times
 - c) 4.0 times
 - d) 5.0 times
- 2) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually.
 - a) Much shorter than the statistical time lag
 - b) Much greater than the statistical time lag
 - c) Equal to the statistical time lag
 - d) None of these
- 3) The conventional direction of electric field is _____
 - a) Positive to negative
 - b) Negative to positive
 - c) No specific direction
 - d) Direction cannot be determined
- 4) For the high voltage conductors at high pressures, if the voltage is positive then the corona appears as a _____
 - a) Uniform bluish white sheath
 - b) Reddish glowing spots
 - c) Uniform greenish spots
 - d) None of these
- 5) The intrinsic breakdown strength of solid dielectrics is about _____
 - a) 50 to 100 kV/mm
 - b) 500 to 1000 kV/mm
 - c) 5 to 10 kV/mm
 - d) 1 to 5 kV/mm
- 6) Electrochemical breakdown & deterioration of insulating material is due to _____
 - a) Temperature rise
 - b) Oxidation, hydrolysis or some other chemical action
 - c) Only due to hydrolysis and moisture effects
 - d) none of the above

- 7) The necessary condition for performing sphere gap test is _____
- Should be between 0.7 μ s and 0.8 μ s
 - The length of gap should be smaller than radius of sphere
 - The length of gap should be 4 times greater than radius of sphere
 - D. An impulse wave of 50000 kV should be applied Wave front time
- 8) Van de Graff generators are useful for _____
- Very high voltage and low current applications
 - Very high voltage and high current applications
 - High voltage pulses only
 - Constant high voltage and current applications
- 9) The generating voltmeter is driven by _____ which _____ energy from measuring source.
- Constant speed motor, absorbs
 - Variable speed motor, doesn't absorb
 - Constant speed motor, doesn't absorb
 - Variable speed motor, absorbs
- 10) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:
- Quasi-peak value
 - Peak value
 - Average value
 - All of the above
- 11) Impulse testing of transformers is done using _____
- Full wave standard impulse
 - Chopped wave standard impulse
 - Half wave standard impulse
 - only (a) and (b)
 - None of these
- 12) A small high-voltage laboratory usually will have _____
- Ac, dc test sources with ratings less than 100 KV, 10kVA/KW and impulse of voltage 400kv, 5kJ
 - Ac, dc test sources of 500 kV, 100 kVA/kW, and impulse of 1 MV 10KJ
 - Ac, voltage sources of 300 kV, 10 kVA, and impulse voltage of 1 MV, 15KJ
 - Ac, dc sources only
- 13) The clearances normally adopted in by laboratories for ac and impulse voltages are _____
- 100 to 200 kv/m for ac and 500 kV/m for impulse
 - 300 kv/ m for ac and 500 kV/m for impulse
 - 30 kV/m for ac and 50 kV/m for impulse
 - 10 kV/m for ac and 50 kV/m for impulse
- 14) In routine test, the cable is tested by applying an ac voltage _____
- 2 times the rated value
 - 2.5 times the rated value
 - 3 times the rated value
 - 3.5 times the rated value

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four of the following. 16

- Write a short note on Gas/Vacuum as insulators.
- Write a short note on characteristics liquid insulators.
- State & derive Paschen's law and equation along with Explanations of V and Pd.
- Explain estimation and control of electric stresses.
- Write short note on breakdown in solid dielectrics due to treeing and tracking.

Q.3 Attempt Any Two of the following. 12

- Explain electrochemical breakdown and thermal breakdown.
- Explain post breakdown phenomena and applications.
- Write short note on Townsend's current growth equation and its secondary ionization process with current equation.

Section – II

Q.4 Attempt Any Four of the following. 16

- Write a short note on CRO for impulse voltage and current measurement
- Explain briefly various tests to be carried out on abushing.
- Explain Cockcroft-Walton multiplier.
- Write a short note on grounding of impulse testing laboratories.
- What is the necessary arrangement required for arrangement required for testing of insulators.

Q.5 Attempt Any Two of the following 12

- Explain sphere gap.
- Discuss the classification of high voltage laboratories, size and ratings of high voltage laboratories.
- Write short note on analysis of impulse generator circuit of series RL-C circuit.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Van de Graff generators are useful for _____
 - a) Very high voltage and low current applications
 - b) Very high voltage and high current applications
 - c) High voltage pulses only
 - d) Constant high voltage and current applications
- 2) The generating voltmeter is driven by _____ which _____ energy from measuring source.
 - a) Constant speed motor, absorbs
 - b) Variable speed motor, doesn't absorb
 - c) Constant speed motor, doesn't absorb
 - d) Variable speed motor, absorbs
- 3) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:
 - a) Quasi-peak value
 - b) Peak value
 - c) Average value
 - d) All of the above
- 4) Impulse testing of transformers is done using _____
 - a) Full wave standard impulse
 - b) Chopped wave standard impulse
 - c) Half wave standard impulse
 - d) only (a) and (b)
 - e) None of these
- 5) A small high-voltage laboratory usually will have _____
 - a) Ac, dc test sources with ratings less than 100 KV, 10kVA/KW and impulse of voltage 400kv, 5kJ
 - b) Ac, dc test sources of 500 kV, 100 kVA/kW, and impulse of 1 MV 10KJ
 - c) Ac, voltage sources of 300 kV, 10 kVA, and impulse voltage of 1 MV, 15KJ
 - d) Ac, dc sources only

- 5) The clearances normally adopted in by laboratories for ac and impulse voltages are _____
- 100 to 200 kv/m for ac and 500 kv/m for impulse
 - 300 kv/ m for ac and 500 kv/m for impulse
 - 30 kv/m for ac and 50 kv/m for impulse
 - 10 kv/m for ac and 50 kv/m for impulse
- 7) In routine test, the cable is tested by applying an ac voltage _____
- 2 times the rated value
 - 2.5 times the rated value
 - 3 times the rated value
 - 3.5 times the rated value
- 8) As compared to air the relative dielectric strength of Sulphur hexafluoride is nearly _____
- 1.5 times
 - 2.5 times
 - 4.0 times
 - 5.0 times
- 9) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually.
- Much shorter than the statistical time lag
 - Much greater than the statistical time lag
 - Equal to the statistical time lag
 - None of these
- 10) The conventional direction of electric field is _____
- Positive to negative
 - Negative to positive
 - No specific direction
 - Direction cannot be determined
- 11) For the high voltage conductors at high pressures, if the voltage is positive then the corona appears as a _____
- Uniform bluish white sheath
 - Reddish glowing spots
 - Uniform greenish spots
 - None of these
- 12) The intrinsic breakdown strength of solid dielectrics is about _____
- 50 to 100 kv/mm
 - 500 to 1000 kv/mm
 - 5 to 10 kv/mm
 - 1 to 5 kv/mm
- 13) Electrochemical breakdown & deterioration of insulating material is due to _____
- Temperature rise
 - Oxidation, hydrolysis or some other chemical action
 - Only due to hydrolysis and moisture effects
 - none of the above
- 14) The necessary condition for performing sphere gap test is _____
- Should be between 0.7 ?s and 0.8 ?
 - The length of gap should be smaller than radius of sphere
 - The length of gap should be 4 times greater than radius of sphere
 - D. An impulse wave of 50000 kv should be applied Wave front time

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four of the following. 16

- Write a short note on Gas/Vacuum as insulators.
- Write a short note on characteristics liquid insulators.
- State & derive Paschen's law and equation along with Explanations of V and Pd.
- Explain estimation and control of electric stresses.
- Write short note on breakdown in solid dielectrics due to treeing and tracking.

Q.3 Attempt Any Two of the following. 12

- Explain electrochemical breakdown and thermal breakdown.
- Explain post breakdown phenomena and applications.
- Write short note on Townsend's current growth equation and its secondary ionization process with current equation.

Section – II

Q.4 Attempt Any Four of the following. 16

- Write a short note on CRO for impulse voltage and current measurement
- Explain briefly various tests to be carried out on abushing.
- Explain Cockcroft-Walton multiplier.
- Write a short note on grounding of impulse testing laboratories.
- What is the necessary arrangement required for arrangement required for testing of insulators.

Q.5 Attempt Any Two of the following 12

- Explain sphere gap.
- Discuss the classification of high voltage laboratories, size and ratings of high voltage laboratories.
- Write short note on analysis of impulse generator circuit of series RL-C circuit.

Seat No.	
-------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer:

14

- 1) Impulse testing of transformers is done using _____
 - a) Full wave standard impulse
 - b) Chopped wave standard impulse
 - c) Half wave standard impulse
 - d) only (a) and (b)
 - e) None of these
- 2) A small high-voltage laboratory usually will have _____
 - a) Ac, dc test sources with ratings less than 100 KV, 10kVA/KW and impulse of voltage 400kv, 5kJ
 - b) Ac, dc test sources of 500 kV, 100 kVA/kW, and impulse of 1 MV 10KJ
 - c) Ac, voltage sources of 300 kV, 10 kVA, and impulse voltage of 1 MV, 15KJ
 - d) Ac, dc sources only
- 3) The clearances normally adopted in by laboratories for ac and impulse voltages are _____
 - a) 100 to 200 kv/m for ac and 500 kV/m for impulse
 - b) 300 kv/ m for ac and 500 kV/m for impulse
 - c) 30 kV/m for ac and 50 kV/m for impulse
 - d) 10 kV/m for ac and 50 kV/m for impulse
- 4) In routine test, the cable is tested by applying an ac voltage _____
 - a) 2 times the rated value
 - b) 2.5 times the rated value
 - c) 3 times the rated value
 - d) 3.5 times the rated value
- 5) As compared to air the relative dielectric strength of Sulphur hexafluoride is nearly _____

a) 1.5 times	b) 2.5 times
c) 4.0 times	d) 5.0 times

- 6) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually.
- Much shorter than the statistical time lag
 - Much greater than the statistical time lag
 - Equal to the statistical time lag
 - None of these
- 7) The conventional direction of electric field is _____
- Positive to negative
 - Negative to positive
 - No specific direction
 - Direction cannot be determined
- 8) For the high voltage conductors at high pressures, if the voltage is positive then the corona appears as a _____
- Uniform bluish white sheath
 - Reddish glowing spots
 - Uniform greenish spots
 - None of these
- 9) The intrinsic breakdown strength of solid dielectrics is about _____
- 50 to 100 kV/mm
 - 500 to 1000 kV/mm
 - 5 to 10 kV/mm
 - 1 to 5 kV/mm
- 10) Electrochemical breakdown & deterioration of insulating material is due to _____
- Temperature rise
 - Oxidation, hydrolysis or some other chemical action
 - Only due to hydrolysis and moisture effects
 - none of the above
- 11) The necessary condition for performing sphere gap test is _____
- Should be between 0.7 μ s and 0.8 μ s
 - The length of gap should be smaller than radius of sphere
 - The length of gap should be 4 times greater than radius of sphere
 - D. An impulse wave of 50000 kV should be applied Wave front time
- 12) Van de Graff generators are useful for _____
- Very high voltage and low current applications
 - Very high voltage and high current applications
 - High voltage pulses only
 - Constant high voltage and current applications
- 13) The generating voltmeter is driven by _____ which _____ energy from measuring source.
- Constant speed motor, absorbs
 - Variable speed motor, doesn't absorb
 - Constant speed motor, doesn't absorb
 - Variable speed motor, absorbs
- 14) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:
- Quasi-peak value
 - Peak value
 - Average value
 - All of the above

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four of the following. 16

- Write a short note on Gas/Vacuum as insulators.
- Write a short note on characteristics liquid insulators.
- State & derive Paschen's law and equation along with Explanations of V and Pd.
- Explain estimation and control of electric stresses.
- Write short note on breakdown in solid dielectrics due to treeing and tracking.

Q.3 Attempt Any Two of the following. 12

- Explain electrochemical breakdown and thermal breakdown.
- Explain post breakdown phenomena and applications.
- Write short note on Townsend's current growth equation and its secondary ionization process with current equation.

Section – II

Q.4 Attempt Any Four of the following. 16

- Write a short note on CRO for impulse voltage and current measurement
- Explain briefly various tests to be carried out on abushing.
- Explain Cockcroft-Walton multiplier.
- Write a short note on grounding of impulse testing laboratories.
- What is the necessary arrangement required for arrangement required for testing of insulators.

Q.5 Attempt Any Two of the following 12

- Explain sphere gap.
- Discuss the classification of high voltage laboratories, size and ratings of high voltage laboratories.
- Write short note on analysis of impulse generator circuit of series RL-C circuit.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)**

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct answer: 14

- 1) Electrochemical breakdown & deterioration of insulating material is due to ____
 - a) Temperature rise
 - b) Oxidation, hydrolysis or some other chemical action
 - c) Only due to hydrolysis and moisture effects
 - d) none of the above
- 2) The necessary condition for performing sphere gap test is ____
 - a) Should be between 0.7 μ s and 0.8 μ s
 - b) The length of gap should be smaller than radius of sphere
 - c) The length of gap should be 4 times greater than radius of sphere
 - d) D. An impulse wave of 50000 kV should be applied Wave front time
- 3) Van de Graff generators are useful for ____
 - a) Very high voltage and low current applications
 - b) Very high voltage and high current applications
 - c) High voltage pulses only
 - d) Constant high voltage and current applications
- 4) The generating voltmeter is driven by ____ which ____ energy from measuring source.
 - a) Constant speed motor, absorbs
 - b) Variable speed motor, doesn't absorb
 - c) Constant speed motor, doesn't absorb
 - d) Variable speed motor, absorbs
- 5) For the measurement of radio interference voltages, the detector circuit is provided with a measuring device to measure:

a) Quasi-peak value	b) Peak value
c) Average value	d) All of the above
- 6) Impulse testing of transformers is done using ____
 - a) Full wave standard impulse
 - b) Chopped wave standard impulse
 - c) Half wave standard impulse
 - d) only (a) and (b)
 - e) None of these

- 7) A small high-voltage laboratory usually will have _____
- a) Ac, dc test sources with ratings less than 100 KV, 10kVA/KW and impulse of voltage 400kv, 5kJ
 - b) Ac, dc test sources of 500 kV, 100 kVA/kW, and impulse of 1 MV 10KJ
 - c) Ac, voltage sources of 300 kV, 10 kVA, and impulse voltage of 1 MV, 15KJ
 - d) Ac, dc sources only
- 8) The clearances normally adopted in by laboratories for ac and impulse voltages are _____
- a) 100 to 200 kv/m for ac and 500 kV/m for impulse
 - b) 300 kv/ m for ac and 500 kV/m for impulse
 - c) 30 kV/m for ac and 50 kV/m for impulse
 - d) 10 kV/m for ac and 50 kV/m for impulse
- 9) In routine test, the cable is tested by applying an ac voltage _____
- a) 2 times the rated value
 - b) 2.5 times the rated value
 - c) 3 times the rated value
 - d) 3.5 times the rated value
- 10) As compared to air the relative dielectric strength of Sulphur hexafluoride is nearly _____
- a) 1.5 times
 - b) 2.5 times
 - c) 4.0 times
 - d) 5.0 times
- 11) Formative time lag depends on the mechanism of the avalanche growth in gap the formative time lag is usually.
- a) Much shorter than the statistical time lag
 - b) Much greater than the statistical time lag
 - c) Equal to the statistical time lag
 - d) None of these
- 12) The conventional direction of electric field is _____
- a) Positive to negative
 - b) Negative to positive
 - c) No specific direction
 - d) Direction cannot be determined
- 13) For the high voltage conductors at high pressures, if the voltage is positive then the corona appears as a _____
- a) Uniform bluish white sheath
 - b) Reddish glowing spots
 - c) Uniform greenish spots
 - d) None of these
- 14) The intrinsic breakdown strength of solid dielectrics is about _____
- a) 50 to 100 kV/mm
 - b) 500 to 1000 kV/mm
 - c) 5 to 10 kV/mm
 - d) 1 to 5 kV/mm

Seat No.	
-----------------	--

Fourth Y. (B. Tech) (Sem - I) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage Engineering (197045710)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Attempt Any Four of the following. 16

- Write a short note on Gas/Vacuum as insulators.
- Write a short note on characteristics liquid insulators.
- State & derive Paschen's law and equation along with Explanations of V and Pd.
- Explain estimation and control of electric stresses.
- Write short note on breakdown in solid dielectrics due to treeing and tracking.

Q.3 Attempt Any Two of the following. 12

- Explain electrochemical breakdown and thermal breakdown.
- Explain post breakdown phenomena and applications.
- Write short note on Townsend's current growth equation and its secondary ionization process with current equation.

Section – II

Q.4 Attempt Any Four of the following. 16

- Write a short note on CRO for impulse voltage and current measurement
- Explain briefly various tests to be carried out on abushing.
- Explain Cockcroft-Walton multiplier.
- Write a short note on grounding of impulse testing laboratories.
- What is the necessary arrangement required for arrangement required for testing of insulators.

Q.5 Attempt Any Two of the following 12

- Explain sphere gap.
- Discuss the classification of high voltage laboratories, size and ratings of high voltage laboratories.
- Write short note on analysis of impulse generator circuit of series RL-C circuit.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Which of the following agreements aimed to address the issue of global climate change by setting binding emission reduction targets for developed countries?
 - a) United Nations Framework Convention on Climate Change (UNFCCC)
 - b) Global Climate Change Treaty
 - c) Kyoto Protocol
 - d) Clean Development Mechanism (CDM)
- 2) Which initiative in India sets mandatory energy performance standards for new commercial buildings and large energy-consuming establishments to promote energy efficiency and sustainability?
 - a) Green Building Certification Program
 - b) Energy Conservation Building Code (ECBC)
 - c) Indian Energy Efficiency Initiative (IEEI)
 - d) Sustainable Development Goals (SDGs)
- 3) Which of the following skills is essential for an effective energy manager?
 - a) Financial management expertise
 - b) Technical knowledge of energy systems
 - c) Marketing and sales skills
 - d) Human resource management proficiency
- 4) What is the fundamental principle underlying effective energy management?
 - a) Maximizing energy consumption
 - b) Minimizing energy efficiency
 - c) Continuous improvement in energy performance
 - d) Ignoring energy conservation practices.
- 5) In which sector can Demand Side Management (DSM) be particularly effective for reducing energy consumption?

a) Industrial	b) Residential
c) Transportation	d) Educational

- 6) What is one of the primary barriers to implementing Demand Side Management (DSM)?
- a) High initial investment costs
 - b) Opposition from energy suppliers
 - c) Lack of available technology
 - d) Limited awareness among consumers
- 7) What are the types of energy audits commonly conducted in industries?
- a) Initial audit and follow-up audit
 - b) Daytime audit and nighttime audit
 - c) Visual audit and auditory audit
 - d) Internal audit and external audit
- 8) Which procedure should be followed during an energy audit?
- a) Record energy consumption data only during peak hours
 - b) Include only energy-consuming equipment in the audit
 - c) Use standardized procedures and checklists
 - d) Rely solely on visual inspection without instrumentations
- 9) What type of drive system adjusts the speed of a motor according to the load requirements?
- a) Fixed-speed drive
 - b) Variable-frequency drive
 - c) Direct drive
 - d) Belt drive
- 10) Which parameter is used to measure the efficiency of illumination in a lighting system?
- a) Voltage
 - b) Power factor
 - c) Luminous efficacy
 - d) Resistance

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

- Q.2 Attempt any Two. 08**
a) What are the necessary Skills of energy Manager?
b) How the power factor penalties and incentives help in DSM?
c) Write a note on supply side management.
- Q.3 Attempt any Two. 12**
a) Explain the role of FACTS, VAR compensation in supply side management.
b) What are the Duties and Responsibilities of energy Manager?
c) Explain the Indian Electricity Act, 2003.

Section – II

- Q.4 Attempt any Two. 08**
a) Write a short note on CUSUM techniques with diagram.
b) Explain the need of Energy Audit.
c) Explain the opportunities for energy conservation in illumination.
- Q.5 Attempt any Two. 12**
a) Explain various instruments with function of each used to carryout energy Audit.
b) Explain energy audit report writing in prescribed form.
c) What is internal and external benchmarking? What are the benefits of benchmarking energy?

Seat No.	
----------	--

Set

Q

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What is one of the primary barriers to implementing Demand Side Management (DSM)?
 - a) High initial investment costs
 - b) Opposition from energy suppliers
 - c) Lack of available technology
 - d) Limited awareness among consumers
- 2) What are the types of energy audits commonly conducted in industries?
 - a) Initial audit and follow-up audit
 - b) Daytime audit and nighttime audit
 - c) Visual audit and auditory audit
 - d) Internal audit and external audit
- 3) Which procedure should be followed during an energy audit?
 - a) Record energy consumption data only during peak hours
 - b) Include only energy-consuming equipment in the audit
 - c) Use standardized procedures and checklists
 - d) Rely solely on visual inspection without instrumentations
- 4) What type of drive system adjusts the speed of a motor according to the load requirements?

a) Fixed-speed drive	b) Variable-frequency drive
c) Direct drive	d) Belt drive
- 5) Which parameter is used to measure the efficiency of illumination in a lighting system?

a) Voltage	b) Power factor
c) Luminous efficacy	d) Resistance

- 6) Which of the following agreements aimed to address the issue of global climate change by setting binding emission reduction targets for developed countries?
- a) United Nations Framework Convention on Climate Change (UNFCCC)
 - b) Global Climate Change Treaty
 - c) Kyoto Protocol
 - d) Clean Development Mechanism (CDM)
- 7) Which initiative in India sets mandatory energy performance standards for new commercial buildings and large energy-consuming establishments to promote energy efficiency and sustainability?
- a) Green Building Certification Program
 - b) Energy Conservation Building Code (ECBC)
 - c) Indian Energy Efficiency Initiative (IEEI)
 - d) Sustainable Development Goals (SDGs)
- 8) Which of the following skills is essential for an effective energy manager?
- a) Financial management expertise
 - b) Technical knowledge of energy systems
 - c) Marketing and sales skills
 - d) Human resource management proficiency
- 9) What is the fundamental principle underlying effective energy management?
- a) Maximizing energy consumption
 - b) Minimizing energy efficiency
 - c) Continuous improvement in energy performance
 - d) Ignoring energy conservation practices.
- 10) In which sector can Demand Side Management (DSM) be particularly effective for reducing energy consumption?
- a) Industrial
 - b) Residential
 - c) Transportation
 - d) Educational

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

- Q.2 Attempt any Two. 08**
a) What are the necessary Skills of energy Manager?
b) How the power factor penalties and incentives help in DSM?
c) Write a note on supply side management.
- Q.3 Attempt any Two. 12**
a) Explain the role of FACTS, VAR compensation in supply side management.
b) What are the Duties and Responsibilities of energy Manager?
c) Explain the Indian Electricity Act, 2003.

Section – II

- Q.4 Attempt any Two. 08**
a) Write a short note on CUSUM techniques with diagram.
b) Explain the need of Energy Audit.
c) Explain the opportunities for energy conservation in illumination.
- Q.5 Attempt any Two. 12**
a) Explain various instruments with function of each used to carryout energy Audit.
b) Explain energy audit report writing in prescribed form.
c) What is internal and external benchmarking? What are the benefits of benchmarking energy?

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) What type of drive system adjusts the speed of a motor according to the load requirements?
 - a) Fixed-speed drive
 - b) Variable-frequency drive
 - c) Direct drive
 - d) Belt drive

- 2) Which parameter is used to measure the efficiency of illumination in a lighting system?
 - a) Voltage
 - b) Power factor
 - c) Luminous efficacy
 - d) Resistance

- 3) Which of the following agreements aimed to address the issue of global climate change by setting binding emission reduction targets for developed countries?
 - a) United Nations Framework Convention on Climate Change (UNFCCC)
 - b) Global Climate Change Treaty
 - c) Kyoto Protocol
 - d) Clean Development Mechanism (CDM)

- 4) Which initiative in India sets mandatory energy performance standards for new commercial buildings and large energy-consuming establishments to promote energy efficiency and sustainability?
 - a) Green Building Certification Program
 - b) Energy Conservation Building Code (ECBC)
 - c) Indian Energy Efficiency Initiative (IEEI)
 - d) Sustainable Development Goals (SDGs)

- 5) Which of the following skills is essential for an effective energy manager?
 - a) Financial management expertise
 - b) Technical knowledge of energy systems
 - c) Marketing and sales skills
 - d) Human resource management proficiency

- 6) What is the fundamental principle underlying effective energy management?
- a) Maximizing energy consumption
 - b) Minimizing energy efficiency
 - c) Continuous improvement in energy performance
 - d) Ignoring energy conservation practices.
- 7) In which sector can Demand Side Management (DSM) be particularly effective for reducing energy consumption?
- a) Industrial
 - b) Residential
 - c) Transportation
 - d) Educational
- 8) What is one of the primary barriers to implementing Demand Side Management (DSM)?
- a) High initial investment costs
 - b) Opposition from energy suppliers
 - c) Lack of available technology
 - d) Limited awareness among consumers
- 9) What are the types of energy audits commonly conducted in industries?
- a) Initial audit and follow-up audit
 - b) Daytime audit and nighttime audit
 - c) Visual audit and auditory audit
 - d) Internal audit and external audit
- 10) Which procedure should be followed during an energy audit?
- a) Record energy consumption data only during peak hours
 - b) Include only energy-consuming equipment in the audit
 - c) Use standardized procedures and checklists
 - d) Rely solely on visual inspection without instrumentations

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

- Q.2 Attempt any Two. 08**
a) What are the necessary Skills of energy Manager?
b) How the power factor penalties and incentives help in DSM?
c) Write a note on supply side management.
- Q.3 Attempt any Two. 12**
a) Explain the role of FACTS, VAR compensation in supply side management.
b) What are the Duties and Responsibilities of energy Manager?
c) Explain the Indian Electricity Act, 2003.

Section – II

- Q.4 Attempt any Two. 08**
a) Write a short note on CUSUM techniques with diagram.
b) Explain the need of Energy Audit.
c) Explain the opportunities for energy conservation in illumination.
- Q.5 Attempt any Two. 12**
a) Explain various instruments with function of each used to carryout energy Audit.
b) Explain energy audit report writing in prescribed form.
c) What is internal and external benchmarking? What are the benefits of benchmarking energy?

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume additional data if required and mention it clearly.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Which of the following skills is essential for an effective energy manager?
 - a) Financial management expertise
 - b) Technical knowledge of energy systems
 - c) Marketing and sales skills
 - d) Human resource management proficiency
- 2) What is the fundamental principle underlying effective energy management?
 - a) Maximizing energy consumption
 - b) Minimizing energy efficiency
 - c) Continuous improvement in energy performance
 - d) Ignoring energy conservation practices.
- 3) In which sector can Demand Side Management (DSM) be particularly effective for reducing energy consumption?

a) Industrial	b) Residential
c) Transportation	d) Educational
- 4) What is one of the primary barriers to implementing Demand Side Management (DSM)?
 - a) High initial investment costs
 - b) Opposition from energy suppliers
 - c) Lack of available technology
 - d) Limited awareness among consumers
- 5) What are the types of energy audits commonly conducted in industries?
 - a) Initial audit and follow-up audit
 - b) Daytime audit and nighttime audit
 - c) Visual audit and auditory audit
 - d) Internal audit and external audit
- 6) Which procedure should be followed during an energy audit?
 - a) Record energy consumption data only during peak hours
 - b) Include only energy-consuming equipment in the audit
 - c) Use standardized procedures and checklists
 - d) Rely solely on visual inspection without instrumentations

- 7) What type of drive system adjusts the speed of a motor according to the load requirements?
- a) Fixed-speed drive
 - b) Variable-frequency drive
 - c) Direct drive
 - d) Belt drive
- 8) Which parameter is used to measure the efficiency of illumination in a lighting system?
- a) Voltage
 - b) Power factor
 - c) Luminous efficacy
 - d) Resistance
- 9) Which of the following agreements aimed to address the issue of global climate change by setting binding emission reduction targets for developed countries?
- a) United Nations Framework Convention on Climate Change (UNFCCC)
 - b) Global Climate Change Treaty
 - c) Kyoto Protocol
 - d) Clean Development Mechanism (CDM)
- 10) Which initiative in India sets mandatory energy performance standards for new commercial buildings and large energy-consuming establishments to promote energy efficiency and sustainability?
- a) Green Building Certification Program
 - b) Energy Conservation Building Code (ECBC)
 - c) Indian Energy Efficiency Initiative (IEEI)
 - d) Sustainable Development Goals (SDGs)

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Energy Audit and Management (BTN07805)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume additional data if required and mention it clearly.

Section – I

- Q.2 Attempt any Two. 08**
a) What are the necessary Skills of energy Manager?
b) How the power factor penalties and incentives help in DSM?
c) Write a note on supply side management.
- Q.3 Attempt any Two. 12**
a) Explain the role of FACTS, VAR compensation in supply side management.
b) What are the Duties and Responsibilities of energy Manager?
c) Explain the Indian Electricity Act, 2003.

Section – II

- Q.4 Attempt any Two. 08**
a) Write a short note on CUSUM techniques with diagram.
b) Explain the need of Energy Audit.
c) Explain the opportunities for energy conservation in illumination.
- Q.5 Attempt any Two. 12**
a) Explain various instruments with function of each used to carryout energy Audit.
b) Explain energy audit report writing in prescribed form.
c) What is internal and external benchmarking? What are the benefits of benchmarking energy?

Seat No.	
----------	--

Fourth Y. (B. Tech.) (Sem-II) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage DC Transmission (BTN07806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) The HVDC transmission line is classified on the basis of _____.
 a) Poles
 b) Earth system
 c) Intermediate system
 d) Both a & b
- 2) The insulated line between HVDC substation and the earth electrode is known as _____.
 a) Station earth
 b) Earth electrode line
 c) Substation earth
 d) one of the above
- 3) Which of the following is Multi terminal HVDC system?
 a) Monopolar
 b) Bipolar
 c) Homopolar
 d) Both (a) and (b)
- 4) HVDC-VSC scheme employs _____.
 a) IGBT valves
 b) light or optically triggered thyristor valves
 c) mercury arc valves
 d) MOSFETs and GTO valves
- 5) 12-pulse converters are used in modern converters because of _____.
 a) reduced current
 b) reduced ripple
 c) increased voltage and reduced harmonics
 d) both (b) and (c)
- 6) IGBT converters operate on the principle of _____.
 a) voltage source converter
 b) current source converter
 c) power source converter
 d) either (a) or (b)
- 7) Which among these is a part of HVDC link?
 a) Two earth electrodes
 b) Converter valves
 c) Bipolar DC line
 d) None of these

Seat No.	
-----------------	--

Set P**Fourth Y. (B. Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****High Voltage DC Transmission (BTN07806)**

Day & Date: Monday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume the suitable data whenever necessary.

Q.2 Solve any FOUR of the following. 20

- Mention the importance of multi-terminal DC links?
- Explain the harmonic instability problems.
- Define SCR and pulse number.
- Write the special features of converter transformers?
- Discuss about the over voltages due to disturbances on DC side.

Q.3 Solve any TWO of the following. 20

- Develop a mathematical model for quantifying the amount of harmonics present in a HVDC network. Also highlight the main sources of harmonic generation.
- Derive the expressions for average dc voltage, AC current and reactive power absorbed by the converter.
- Describe the following operational problems in HVDC Transmission Systems
(i) Converter Transformer (ii) Flashover performance of HVDC Converter Stations Insulators (iii) Valve Hall Fires (iv) Problems of Ground Return.

Seat No.	
----------	--

Set **Q**

Fourth Y. (B. Tech.) (Sem-II) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

High Voltage DC Transmission (BTN07806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) IGBT converters operate on the principle of _____.
 a) voltage source converter b) current source converter
 c) power source converter d) either (a) or (b)
- 2) Which among these is a part of HVDC link?
 a) Two earth electrodes b) Converter valves
 c) Bipolar DC line d) None of these
- 3) The rating of monopolar HVDC system is _____ to that of bipolar HVDC system.
 a) $\frac{1}{2}$ b) $\sqrt{2}$
 c) 2 d) $\sqrt{3}$
- 4) The two conductor in the Homo polar HVDC system is _____.
 a) Positive polarity b) Negative polarity
 c) Same polarity d) Any of the above
- 5) The main advantage of HVDC-VSC schemes is _____.
 a) both active and reactive powers can be controlled
 b) does not require DC filters
 c) can be used for very high power more than 1500 MW
 d) all of the above
- 6) The HVDC transmission line is classified on the basis of _____.
 a) Poles b) Earth system
 c) Intermediate system d) Both a & b
- 7) The insulated line between HVDC substation and the earth electrode is known as _____.
 a) Station earth b) Earth electrode line
 c) Substation earth d) one of the above
- 8) Which of the following is Multi terminal HVDC system?
 a) Monopolar b) Bipolar
 c) Homopolar d) Both (a) and (b)

- 9) HVDC-VSC scheme employs _____.
- a) IGBT valves
 - b) light or optically triggered thyristor valves
 - c) mercury arc valves
 - d) MOSFETs and GTO valves
- 10) 12-pulse converters are used in modem converters because of _____.
- a) reduced current
 - b) reduced ripple
 - c) increased voltage and reduced harmonics
 - d) both (b) and (c)

Seat No.	
-----------------	--

Set Q

Fourth Y. (B. Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
High Voltage DC Transmission (BTN07806)

Day & Date: Monday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume the suitable data whenever necessary.

Q.2 Solve any FOUR of the following. 20

- Mention the importance of multi-terminal DC links?
- Explain the harmonic instability problems.
- Define SCR and pulse number.
- Write the special features of converter transformers?
- Discuss about the over voltages due to disturbances on DC side.

Q.3 Solve any TWO of the following. 20

- Develop a mathematical model for quantifying the amount of harmonics present in a HVDC network. Also highlight the main sources of harmonic generation.
- Derive the expressions for average dc voltage, AC current and reactive power absorbed by the converter.
- Describe the following operational problems in HVDC Transmission Systems
(i) Converter Transformer (ii) Flashover performance of HVDC Converter Stations Insulators (iii) Valve Hall Fires (iv) Problems of Ground Return.

Seat No.	
----------	--

Fourth Y. (B. Tech.) (Sem-II) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

High Voltage DC Transmission (BTN07806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options. 10

- 1) The two conductor in the Homo polar HVDC system is _____.
 a) Positive polarity b) Negative polarity
 c) Same polarity d) Any of the above
- 2) The main advantage of HVDC-VSC schemes is _____.
 a) both active and reactive powers can be controlled
 b) does not require DC filters
 c) can be used for very high power more than 1500 MW
 d) all of the above
- 3) The HVDC transmission line is classified on the basis of _____.
 a) Poles b) Earth system
 c) Intermediate system d) Both a & b
- 4) The insulated line between HVDC substation and the earth electrode is known as _____.
 a) Station earth b) Earth electrode line
 c) Substation earth d) one of the above
- 5) Which of the following is Multi terminal HVDC system?
 a) Monopolar b) Bipolar
 c) Homopolar d) Both (a) and (b)
- 6) HVDC-VSC scheme employs _____.
 a) IGBT valves
 b) light or optically triggered thyristor valves
 c) mercury arc valves
 d) MOSFETs and GTO valves
- 7) 12-pulse converters are used in modem converters because of _____.
 a) reduced current
 b) reduced ripple
 c) increased voltage and reduced harmonics
 d) both (b) and (c)

- 8) IGBT converters operate on the principle of _____.
a) voltage source converter b) current source converter
c) power source converter d) either (a) or (b)
- 9) Which among these is a part of HVDC link?
a) Two earth electrodes b) Converter valves
c) Bipolar DC line d) None of these
- 10) The rating of monopolar HVDC system is _____ to that of bipolar HVDC system.
a) $\frac{1}{2}$ b) $\sqrt{2}$
c) 2 d) $\sqrt{3}$

Seat No.	
-----------------	--

Set R**Fourth Y. (B. Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****High Voltage DC Transmission (BTN07806)**

Day & Date: Monday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume the suitable data whenever necessary.

Q.2 Solve any FOUR of the following. 20

- a) Mention the importance of multi-terminal DC links?
- b) Explain the harmonic instability problems.
- c) Define SCR and pulse number.
- d) Write the special features of converter transformers?
- e) Discuss about the over voltages due to disturbances on DC side.

Q.3 Solve any TWO of the following. 20

- a) Develop a mathematical model for quantifying the amount of harmonics present in a HVDC network. Also highlight the main sources of harmonic generation.
- b) Derive the expressions for average dc voltage, AC current and reactive power absorbed by the converter.
- c) Describe the following operational problems in HVDC Transmission Systems
(i) Converter Transformer (ii) Flashover performance of HVDC Converter Stations Insulators (iii) Valve Hall Fires (iv) Problems of Ground Return.

Seat No.	
----------	--

Fourth Y. (B. Tech.) (Sem-II) (New)(CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

High Voltage DC Transmission (BTN07806)

Day & Date: Saturday, 11-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct alternatives from the given options.

10

- 1) Which of the following is Multi terminal HVDC system?
 - a) Monopolar
 - b) Bipolar
 - c) Homopolar
 - d) Both (a) and (b)
- 2) HVDC-VSC scheme employs _____.
 - a) IGBT valves
 - b) light or optically triggered thyristor valves
 - c) mercury arc valves
 - d) MOSFETs and GTO valves
- 3) 12-pulse converters are used in modem converters because of _____.
 - a) reduced current
 - b) reduced ripple
 - c) increased voltage and reduced harmonics
 - d) both (b) and (c)
- 4) IGBT converters operate on the principle of _____.
 - a) voltage source converter
 - b) current source converter
 - c) power source converter
 - d) either (a) or (b)
- 5) Which among these is a part of HVDC link?
 - a) Two earth electrodes
 - b) Converter valves
 - c) Bipolar DC line
 - d) None of these
- 6) The rating of monopolar HVDC system is _____ to that of bipolar HVDC system.
 - a) $\frac{1}{2}$
 - b) $\sqrt{2}$
 - c) 2
 - d) $\sqrt{3}$
- 7) The two conductor in the Homo polar HVDC system is _____.
 - a) Positive polarity
 - b) Negative polarity
 - c) Same polarity
 - d) Any of the above

- 8) The main advantage of HVDC-VSC schemes is _____.
- a) both active and reactive powers can be controlled
 - b) does not require DC filters
 - c) can be used for very high power more than 1500 MW
 - d) all of the above
- 9) The HVDC transmission line is classified on the basis of _____.
- a) Poles
 - b) Earth system
 - c) Intermediate system
 - d) Both a & b
- 10) The insulated line between HVDC substation and the earth electrode is known as _____.
- a) Station earth
 - b) Earth electrode line
 - c) Substation earth
 - d) one of the above

Seat No.	
-----------------	--

Set S**Fourth Y. (B. Tech.) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING****High Voltage DC Transmission (BTN07806)**

Day & Date: Monday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume the suitable data whenever necessary.

Q.2 Solve any FOUR of the following. 20

- a) Mention the importance of multi-terminal DC links?
- b) Explain the harmonic instability problems.
- c) Define SCR and pulse number.
- d) Write the special features of converter transformers?
- e) Discuss about the over voltages due to disturbances on DC side.

Q.3 Solve any TWO of the following. 20

- a) Develop a mathematical model for quantifying the amount of harmonics present in a HVDC network. Also highlight the main sources of harmonic generation.
- b) Derive the expressions for average dc voltage, AC current and reactive power absorbed by the converter.
- c) Describe the following operational problems in HVDC Transmission Systems
(i) Converter Transformer (ii) Flashover performance of HVDC Converter Stations Insulators (iii) Valve Hall Fires (iv) Problems of Ground Return.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) Source of voltage sags _____.
 - a) Motor starting
 - b) Arc furnace
 - c) Electric heaters
 - d) All of the above
- 2) The most common way to calculate voltage sag is from _____.
 - a) Apparent power
 - b) Peak voltage
 - c) RMS voltage
 - d) Average Voltage
- 3) Most of the power quality problems are related to _____.
 - a) Transmission Issue
 - b) Grounding Issue
 - c) Distribution Issue
 - d) All of the above
- 4) Passive filter is used to control _____.
 - a) voltage
 - b) frequency
 - c) current
 - d) harmonics
- 5) The voltage harmonic distortion is used to _____.
 - a) THD
 - b) TDD
 - c) UTD
 - d) None of these
- 6) The current harmonic distortion is used to _____.
 - a) THD
 - b) TDD
 - c) UTD
 - d) SD
- 7) Harmonic problem combined with _____ power factor.
 - a) lead
 - b) unity
 - c) lag
 - d) None of these
- 8) A shunt connected, thyristor switches inductor whose effective reactance is varied in a _____.
 - a) Stepwise manner
 - b) Continuous manner
 - c) Linear manner
 - d) None of above
- 9) Which are the shunt compensation devices?
 - a) TCSC
 - b) SSSC
 - c) UPFC
 - d) SVC

- 10) SVC stands for _____.
a) Static Var Compensator b) Static Voltage Controller
c) Static Var Converter d) Static Voltage Converter
- 11) The salient features of STATCOM are _____.
a) Compact size b) Dynamic response
c) Wide range control d) All of the above
- 12) UPFC is an example of _____.
a) combined series-shunt controller
b) combined series-series controller
c) series controller
d) shunt controller
- 13) UPFC is combination of _____.
a) STATCOM and SSSC b) TCPAR-TCR
c) Series and series d) All of the above
- 14) The fastest operation of compensator is _____.
a) TSSC b) TCSC
c) GCSC d) All of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. 16

- What is the importance of Power Quality and what are the impacts of Power Quality?
- Explain the International Standards of power quality.
- Explain the active and passive filter control harmonic distortion.
- Explain Power System Response Characteristics.
- Explain Spectrum analysers and harmonic Analysers.

Q.3 Attempt Any Two. 12

- Explain short duration voltage variations with causes.
- Write short note on Monitoring and Diagnostic Techniques for PQ problems.
- Explain Harmonic sources from Commercial and Industrial loads.

Section – II

Q.4 Attempt Any Four. 16

- Enlist the objectives of Static shunt compensator.
- Explain in details STATCOM & SVC.
- Explain the functional control scheme for the GCSC.
- Explain the characteristics of Series Compensator.
- Explain the hybrid phase angle regulator.

Q.5 Attempt Any Two. 12

- Write short note on basic operating principle of IPFC.
- Explain:
 - TSSC
 - SSSC
- Explain the basic types of FACTS Controllers & Benefits of FACTS controller in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) A shunt connected, thyristor switches inductor whose effective reactance is varied in a _____.
 - a) Stepwise manner
 - b) Continuous manner
 - c) Linear manner
 - d) None of above
- 2) Which are the shunt compensation devices?
 - a) TCSC
 - b) SSSC
 - c) UPFC
 - d) SVC
- 3) SVC stands for _____.
 - a) Static Var Compensator
 - b) Static Voltage Controller
 - c) Static Var Converter
 - d) Static Voltage Converter
- 4) The salient features of STATCOM are _____.
 - a) Compact size
 - b) Dynamic response
 - c) Wide range control
 - d) All of the above
- 5) UPFC is an example of _____.
 - a) combined series-shunt controller
 - b) combined series-series controller
 - c) series controller
 - d) shunt controller
- 6) UPFC is combination of _____.
 - a) STATCOM and SSSC
 - b) TCPAR-TCR
 - c) Series and series
 - d) All of the above
- 7) The fastest operation of compensator is _____.
 - a) TSSC
 - b) TCSC
 - c) GCSC
 - d) All of these
- 8) Source of voltage sags _____.
 - a) Motor starting
 - b) Arc furnace
 - c) Electric heaters
 - d) All of the above
- 9) The most common way to calculate voltage sag is from _____.
 - a) Apparent power
 - b) Peak voltage
 - c) RMS voltage
 - d) Average Voltage

- 10) Most of the power quality problems are related to _____.
a) Transmission Issue b) Grounding Issue
c) Distribution Issue d) All of the above
- 11) Passive filter is used to control _____.
a) voltage b) frequency
c) current d) harmonics
- 12) The voltage harmonic distortion is used to _____.
a) THD b) TDD
c) UTD d) None of these
- 13) The current harmonic distortion is used to _____.
a) THD b) TDD
c) UTD d) SD
- 14) Harmonic problem combined with _____ power factor.
a) lead b) unity
c) lag d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. 16

- What is the importance of Power Quality and what are the impacts of Power Quality?
- Explain the International Standards of power quality.
- Explain the active and passive filter control harmonic distortion.
- Explain Power System Response Characteristics.
- Explain Spectrum analysers and harmonic Analysers.

Q.3 Attempt Any Two. 12

- Explain short duration voltage variations with causes.
- Write short note on Monitoring and Diagnostic Techniques for PQ problems.
- Explain Harmonic sources from Commercial and Industrial loads.

Section – II

Q.4 Attempt Any Four. 16

- Enlist the objectives of Static shunt compensator.
- Explain in details STATCOM & SVC.
- Explain the functional control scheme for the GCSC.
- Explain the characteristics of Series Compensator.
- Explain the hybrid phase angle regulator.

Q.5 Attempt Any Two. 12

- Write short note on basic operating principle of IPFC.
- Explain:
 - TSSC
 - SSSC
- Explain the basic types of FACTS Controllers & Benefits of FACTS controller in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) The salient features of STATCOM are _____.
 - a) Compact size
 - b) Dynamic response
 - c) Wide range control
 - d) All of the above
- 2) UPFC is an example of _____.
 - a) combined series-shunt controller
 - b) combined series-series controller
 - c) series controller
 - d) shunt controller
- 3) UPFC is combination of _____.
 - a) STATCOM and SSSC
 - b) TCPAR-TCR
 - c) Series and series
 - d) All of the above
- 4) The fastest operation of compensator is _____.
 - a) TSSC
 - b) TCSC
 - c) GCSC
 - d) All of these
- 5) Source of voltage sags _____.
 - a) Motor starting
 - b) Arc furnace
 - c) Electric heaters
 - d) All of the above
- 6) The most common way to calculate voltage sag is from _____.
 - a) Apparent power
 - b) Peak voltage
 - c) RMS voltage
 - d) Average Voltage
- 7) Most of the power quality problems are related to _____.
 - a) Transmission Issue
 - b) Grounding Issue
 - c) Distribution Issue
 - d) All of the above
- 8) Passive filter is used to control _____.
 - a) voltage
 - b) frequency
 - c) current
 - d) harmonics
- 9) The voltage harmonic distortion is used to _____.
 - a) THD
 - b) TDD
 - c) UTD
 - d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. 16

- What is the importance of Power Quality and what are the impacts of Power Quality?
- Explain the International Standards of power quality.
- Explain the active and passive filter control harmonic distortion.
- Explain Power System Response Characteristics.
- Explain Spectrum analysers and harmonic Analysers.

Q.3 Attempt Any Two. 12

- Explain short duration voltage variations with causes.
- Write short note on Monitoring and Diagnostic Techniques for PQ problems.
- Explain Harmonic sources from Commercial and Industrial loads.

Section – II

Q.4 Attempt Any Four. 16

- Enlist the objectives of Static shunt compensator.
- Explain in details STATCOM & SVC.
- Explain the functional control scheme for the GCSC.
- Explain the characteristics of Series Compensator.
- Explain the hybrid phase angle regulator.

Q.5 Attempt Any Two. 12

- Write short note on basic operating principle of IPFC.
- Explain:
 - TSSC
 - SSSC
- Explain the basic types of FACTS Controllers & Benefits of FACTS controller in detail.

- 10) Source of voltage sags _____.
a) Motor starting b) Arc furnace
c) Electric heaters d) All of the above
- 11) The most common way to calculate voltage sag is from _____.
a) Apparent power b) Peak voltage
c) RMS voltage d) Average Voltage
- 12) Most of the power quality problems are related to _____.
a) Transmission Issue b) Grounding Issue
c) Distribution Issue d) All of the above
- 13) Passive filter is used to control _____.
a) voltage b) frequency
c) current d) harmonics
- 14) The voltage harmonic distortion is used to _____.
a) THD b) TDD
c) UTD d) None of these

Seat No.	
-----------------	--

Fourth Y. (B.Tech.) (Sem-II) (Old) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Power Quality & FACTS (197045801)

Day & Date: Thursday 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve Any Four. 16

- What is the importance of Power Quality and what are the impacts of Power Quality?
- Explain the International Standards of power quality.
- Explain the active and passive filter control harmonic distortion.
- Explain Power System Response Characteristics.
- Explain Spectrum analysers and harmonic Analysers.

Q.3 Attempt Any Two. 12

- Explain short duration voltage variations with causes.
- Write short note on Monitoring and Diagnostic Techniques for PQ problems.
- Explain Harmonic sources from Commercial and Industrial loads.

Section – II

Q.4 Attempt Any Four. 16

- Enlist the objectives of Static shunt compensator.
- Explain in details STATCOM & SVC.
- Explain the functional control scheme for the GCSC.
- Explain the characteristics of Series Compensator.
- Explain the hybrid phase angle regulator.

Q.5 Attempt Any Two. 12

- Write short note on basic operating principle of IPFC.
- Explain:
 - TSSC
 - SSSC
- Explain the basic types of FACTS Controllers & Benefits of FACTS controller in detail.

Seat No.	
-------------	--

Set

P

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Write short Note. (Any Four) 16**
- a) Attenuation of travelling wave
 - b) Effect of bundled conductors on its inductance
 - c) Characteristics and generation of audible noise
 - d) Corona loss using Q-V diagram of corona
 - e) Tower footing resistance
- Q.3 Solve any Two. 12**
- a) How the audible noise is generated and what are the characteristics?
 - b) Derive the expression for resistance and inductance of ground return.
 - c) An overhead conductor of 1.6 cm radius is 10 m above ground (230 KV line to line). The switching surge experienced is 3.5 pu Taking $k = 0.7$. Calculate energy loss per km of line assume smooth conductor.

Section – II

- Q.4 Write short Note. (Any Four) 16**
- a) Sub-synchronous resonance in series capacitor compensated lines
 - b) Valve type lightning arrester
 - c) Static reactive compensating
 - d) Cascade connection of components by shunt and series compensation
 - e) Ferroresonance voltage
 - f) Sinusoidal excitation lumped parameter circuit
- Q.5 Solve any Two. 12**
- a) Explain design of EHV lines under steady state.
 - b) Brief the static reactive compensation system by different SVC schemes.
 - c) What are the factors under steady state in design of EHV lines.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The conductor used in EHV transmission in recent developments is _____.
 - a) ACSR
 - b) ACAR
 - c) AAAC
 - d) All of the above
- 2) The peak value of current related to pulse properties during positive and negative pulse is respectively _____.
 - a) 100 mA, 10 mA
 - b) 100 mA, 100 mA
 - c) 10 mA, 10 mA
 - d) None of these
- 3) The effect of resistance in EHV lines is _____.
 - a) I^2R loss
 - b) Reduced current carrying capacity of conductors in high ambient temperature region
 - c) Affects the attenuation of travelling waves
 - d) All of the above
- 4) The measurement of electrostatic field of an EHV line is done by _____.
 - a) Dipole
 - b) Spherical Dipole
 - c) Parallel plates
 - d) All of the above
- 5) When surge propagates on transmission lines they suffer attenuation or decrease in amplitude due to energy lost in the _____.
 - a) Conductor resistance
 - b) Ground resistance
 - c) Corona
 - d) All of the above
- 6) Operating 750 KV line gives An at a level of _____.
 - a) 50 dB
 - b) 52 dB
 - c) 55.4 dB
 - d) 58.5 dB
- 7) The crest time of pulse properties for positive cycle is _____.
 - a) 20 ns
 - b) 30 ns
 - c) 40 ns
 - d) 50 ns
- 8) Using a uniform field spark gap, the breakdown voltage for 10 mm gap length is _____.
 - a) 34.25 KV
 - b) 30.30 KV
 - c) 36.25 KV
 - d) 32.73 KV

- 9) A generating voltmeter _____.
a) Generating voltage b) Generates current
c) Is a variable capacitor device d) Both (b) and (c)
- 10) The transmission line voltage increased to 345 KV during the year in western countries _____.
a) 1942 b) 1945
c) 1950 d) 1954
- 11) The breakdown voltage of a specimen is 65 KV at STP. The breakdown voltage at 73 cm Hg pressure and 35° C is _____.
a) 69 KV b) 63.25 KV
c) 64.33 KV d) 60.39 KV
- 12) The type of EHV cable is _____.
a) High pressure oil filled b) Cross linked polythene
c) Gas insulated lines d) AU of the above
- 13) In a transmission system, the feeder supplies power to a _____.
a) Transformer sub-station b) Service mains
c) Distributors d) All of the above
- 14) The positive sequence reactance per phase in ohm/km in 750 transmission line is _____.
a) 0.272 b) 0.227
c) 0.722 d) None of these

Seat No.	
-------------	--

Set

Q

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Write short Note. (Any Four) 16**
- a) Attenuation of travelling wave
 - b) Effect of bundled conductors on its inductance
 - c) Characteristics and generation of audible noise
 - d) Corona loss using Q-V diagram of corona
 - e) Tower footing resistance
- Q.3 Solve any Two. 12**
- a) How the audible noise is generated and what are the characteristics?
 - b) Derive the expression for resistance and inductance of ground return.
 - c) An overhead conductor of 1.6 cm radius is 10 m above ground (230 KV line to line). The switching surge experienced is 3.5 pu Taking $k = 0.7$. Calculate energy loss per km of line assume smooth conductor.

Section – II

- Q.4 Write short Note. (Any Four) 16**
- a) Sub-synchronous resonance in series capacitor compensated lines
 - b) Valve type lightning arrester
 - c) Static reactive compensating
 - d) Cascade connection of components by shunt and series compensation
 - e) Ferroresonance voltage
 - f) Sinusoidal excitation lumped parameter circuit
- Q.5 Solve any Two. 12**
- a) Explain design of EHV lines under steady state.
 - b) Brief the static reactive compensation system by different SVC schemes.
 - c) What are the factors under steady state in design of EHV lines.

Seat No.	
-------------	--

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024

Max. Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The measurement of electrostatic field of an EHV line is done by _____.
 - a) Dipole
 - b) Spherical Dipole
 - c) Parallel plates
 - d) All of the above

- 2) When surge propagates on transmission lines they suffer attenuation or decrease in amplitude due to energy lost in the _____.
 - a) Conductor resistance
 - b) Ground resistance
 - c) Corona
 - d) All of the above

- 3) Operating 750 KV line gives An at a level of _____.
 - a) 50 dB
 - b) 52 dB
 - c) 55.4 dB
 - d) 58.5 dB

- 4) The crest time of pulse properties for positive cycle is _____.
 - a) 20 ns
 - b) 30 ns
 - c) 40 ns
 - d) 50 ns

- 5) Using a uniform field spark gap, the breakdown voltage for 10 mm gap length is _____.
 - a) 34.25 KV
 - b) 30.30 KV
 - c) 36.25 KV
 - d) 32.73 KV

- 6) A generating voltmeter _____.
 - a) Generating voltage
 - b) Generates current
 - c) Is a variable capacitor device
 - d) Both (b) and (c)

- 7) The transmission line voltage increased to 345 KV during the year in western countries _____.
 - a) 1942
 - b) 1945
 - c) 1950
 - d) 1954

- 8) The breakdown voltage of a specimen is 65 KV at STP. The breakdown voltage at 73 cm Hg pressure and 35° C is _____.
 - a) 69 KV
 - b) 63.25 KV
 - c) 64.33 KV
 - d) 60.39 KV

- 9) The type of EHV cable is _____.
a) High pressure oil filled b) Cross linked polythene
c) Gas insulated lines d) AU of the above
- 10) In a transmission system, the feeder supplies power to a _____.
a) Transformer sub-station b) Service mains
c) Distributors d) All of the above
- 11) The positive sequence reactance per phase in ohm/km in 750 transmission line is _____.
a) 0.272 b) 0.227
c) 0.722 d) None of these
- 12) The conductor used in EHV transmission in recent developments is _____.
a) ACSR b) ACAR
c) AAAC d) All of the above
- 13) The peak value of current related to pulse properties during positive and negative pulse is respectively _____.
a) 100 mA, 10 mA b) 100 mA, 100 mA
c) 10 mA, 10 mA d) None of these
- 14) The effect of resistance in EHV lines is _____.
a) I^2R loss
b) Reduced current carrying capacity of conductors in high ambient temperature region
c) Affects the attenuation of travelling waves
d) All of the above

Seat No.	
----------	--

Set

R

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Write short Note. (Any Four) 16**
- a) Attenuation of travelling wave
 - b) Effect of bundled conductors on its inductance
 - c) Characteristics and generation of audible noise
 - d) Corona loss using Q-V diagram of corona
 - e) Tower footing resistance
- Q.3 Solve any Two. 12**
- a) How the audible noise is generated and what are the characteristics?
 - b) Derive the expression for resistance and inductance of ground return.
 - c) An overhead conductor of 1.6 cm radius is 10 m above ground (230 KV line to line). The switching surge experienced is 3.5 pu Taking $k = 0.7$. Calculate energy loss per km of line assume smooth conductor.

Section – II

- Q.4 Write short Note. (Any Four) 16**
- a) Sub-synchronous resonance in series capacitor compensated lines
 - b) Valve type lightning arrester
 - c) Static reactive compensating
 - d) Cascade connection of components by shunt and series compensation
 - e) Ferroresonance voltage
 - f) Sinusoidal excitation lumped parameter circuit
- Q.5 Solve any Two. 12**
- a) Explain design of EHV lines under steady state.
 - b) Brief the static reactive compensation system by different SVC schemes.
 - c) What are the factors under steady state in design of EHV lines.

Seat No.	
----------	--

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In a transmission system, the feeder supplies power to a _____.
a) Transformer sub-station b) Service mains
c) Distributors d) All of the above
- 2) The positive sequence reactance per phase in ohm/km in 750 transmission line is _____.
a) 0.272 b) 0.227
c) 0.722 d) None of these
- 3) The conductor used in EHV transmission in recent developments is _____.
a) ACSR b) ACAR
c) AAAC d) All of the above
- 4) The peak value of current related to pulse properties during positive and negative pulse is respectively _____.
a) 100 mA, 10 mA b) 100 mA, 100 mA
c) 10 mA, 10 mA d) None of these
- 5) The effect of resistance in EHV lines is _____.
a) I^2R loss
b) Reduced current carrying capacity of conductors in high ambient temperature region
c) Affects the attenuation of travelling waves
d) All of the above
- 6) The measurement of electrostatic field of an EHV line is done by _____.
a) Dipole b) Spherical Dipole
c) Parallel plates d) All of the above
- 7) When surge propagates on transmission lines they suffer attenuation or decrease in amplitude due to energy lost in the _____.
a) Conductor resistance b) Ground resistance
c) Corona d) All of the above
- 8) Operating 750 KV line gives An at a level of _____.
a) 50 dB b) 52 dB
c) 55.4 dB d) 58.5 dB

Seat No.	
-------------	--

Set **S**

**Fourth Y. (B. Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Extra High Voltage AC Transmission (197045802)

Day & Date: Friday 10-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Write short Note. (Any Four) 16**
- a) Attenuation of travelling wave
 - b) Effect of bundled conductors on its inductance
 - c) Characteristics and generation of audible noise
 - d) Corona loss using Q-V diagram of corona
 - e) Tower footing resistance
- Q.3 Solve any Two. 12**
- a) How the audible noise is generated and what are the characteristics?
 - b) Derive the expression for resistance and inductance of ground return.
 - c) An overhead conductor of 1.6 cm radius is 10 m above ground (230 KV line to line). The switching surge experienced is 3.5 pu Taking $k = 0.7$. Calculate energy loss per km of line assume smooth conductor.

Section – II

- Q.4 Write short Note. (Any Four) 16**
- a) Sub-synchronous resonance in series capacitor compensated lines
 - b) Valve type lightning arrester
 - c) Static reactive compensating
 - d) Cascade connection of components by shunt and series compensation
 - e) Ferroresonance voltage
 - f) Sinusoidal excitation lumped parameter circuit
- Q.5 Solve any Two. 12**
- a) Explain design of EHV lines under steady state.
 - b) Brief the static reactive compensation system by different SVC schemes.
 - c) What are the factors under steady state in design of EHV lines.

Seat No.	
-------------	--

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) For flour mills, power consumed is _____.
 - a) 10-15 KW
 - b) 100-200 W
 - c) 200 W
 - d) 7 KW
- 2) The capital cost of a power plant depends on _____.
 - a) Total installed capacity only
 - b) Total number of units only
 - c) Both a and b
 - d) None of these
- 3) What is the modern trend in electric power generation?
 - a) To have a large number of small size thermal plants located at different places.
 - b) To have large size thermal plants near load centre.
 - c) To have large size thermal plants located near coal fields.
 - d) None of the above
- 4) Planning for power systems is essentially a projection of _____.
 - a) how the system should grow over a specific period of time
 - b) Judgment about the future loads and the size of investment in generating capacity additions
 - c) transmission facilities expansion and reinforcements
 - d) All above
- 5) Transmission efficiency of line increases with the _____.
 - a) Decrease in power factor and voltage
 - b) Increase in power factor and voltage
 - c) Increase in power factor but Decrease in voltage
 - d) Increase in Voltage but Decrease in power factor
- 6) What is the commercial unit of Energy?
 - a) electron volt
 - b) W/s
 - c) KWh
 - d) Joule

- 7) Energy conservation means _____.
a) Using Energy more efficiently
b) Reducing wastage of Energy
c) New investment in more efficient equipments
d) All above
- 8) In order to have a lower cost of electrical energy generation _____.
a) The load factor and diversity factor should be low
b) The load factor should be low but diversity factor should be high
c) The load factor should be high but diversity factor should be low
d) The load factor and diversity factor should be high
- 9) The objective of energy management includes _____.
a) Minimising energy costs
b) Minimising waste
c) Minimising environmental degradation
d) All the above
- 10) The demand side management can be achieved by the technique of _____.
a) Time of day pricing and metering
b) Multi - utility power exchange model
c) Load management
d) All of these
- 11) The reduction of utility load primarily during peak demand is known as _____.
a) Peak clipping
b) Load shifting
c) Valley filling
d) MTP analysis
- 12) Distribution automation is used for _____.
a) Electrical quantities only
b) Physical quantities only
c) Both of the above
d) All of the above
- 13) The main problem in implanting Distribution Automation in metros is _____.
a) RTUs
b) Communication
c) D.A.S.
d) Control computers
- 14) Distribution SCADA means _____.
a) data acquisition
b) man - machine interface
c) data archiving
d) all of the above

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) What is generation planning? What are factors affecting this?
 - c) Explain the objectives of generation planning.
 - d) Define the term load forecasting. Categorize loads in power system.
 - e) Describe different methodologies used for load forecasting.

- Q.3 Solve any Two** **12**
- a) Which are the different techniques for load forecasting?
 - b) What do you understand by system planning? Explain main aims of different types of system planning.
 - c) Write note on Cost Analysis.

Section – II

- Q.4 Solve any Four** **16**
- a) What do you mean by Energy audit?
 - b) What do you mean by Demand side Management?
 - c) Explain New algorithms and methods relating to Load Forecasting.
 - d) Explain the objectives of generation planning. What are factors affecting this?
 - e) What is Transmission Planning?

- Q.5 Solve any Two** **12**
- a) Explain the Data required for Composite System Reliability and quality.
 - b) Write short note on listing of energy conservation opportunities (ECOs).
 - c) Explain New algorithms and methods relating to power system planning.

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In order to have a lower cost of electrical energy generation _____.
 - a) The load factor and diversity factor should be low
 - b) The load factor should be low but diversity factor should be high
 - c) The load factor should be high but diversity factor should be low
 - d) The load factor and diversity factor should be high
- 2) The objective of energy management includes _____.
 - a) Minimising energy costs
 - b) Minimising waste
 - c) Minimising environmental degradation
 - d) All the above
- 3) The demand side management can be achieved by the technique of _____.
 - a) Time of day pricing and metering
 - b) Multi - utility power exchange model
 - c) Load management
 - d) All of these
- 4) The reduction of utility load primarily during peak demand is known as _____.

a) Peak clipping	b) Load shifting
c) Valley filling	d) MTP analysis
- 5) Distribution automation is used for _____.

a) Electrical quantities only	b) Physical quantities only
c) Both of the above	d) All of the above
- 6) The main problem in implanting Distribution Automation in metros is _____.

a) RTUs	b) Communication
c) D.A.S.	d) Control computers
- 7) Distribution SCADA means _____.

a) data acquisition	b) man - machine interface
c) data archiving	d) all of the above
- 8) For flour mills, power consumed is _____.

a) 10-15 KW	b) 100-200 W
c) 200 W	d) 7 KW

- 9) The capital cost of a power plant depends on _____.
a) Total installed capacity only b) Total number of units only
c) Both a and b d) None of these
- 10) What is the modern trend in electric power generation?
a) To have a large number of small size thermal plants located at different places.
b) To have large size thermal plants near load centre.
c) To have large size thermal plants located near coal fields.
d) None of the above
- 11) Planning for power systems is essentially a projection of _____.
a) how the system should grow over a specific period of time
b) Judgment about the future loads and the size of investment in generating capacity additions
c) transmission facilities expansion and reinforcements
d) All above
- 12) Transmission efficiency of line increases with the _____.
a) Decrease in power factor and voltage
b) Increase in power factor and voltage
c) Increase in power factor but Decrease in voltage
d) Increase in Voltage but Decrease in power factor
- 13) What is the commercial unit of Energy?
a) electron volt b) W/s
c) KWh d) Joule
- 14) Energy conservation means _____.
a) Using Energy more efficiently
b) Reducing wastage of Energy
c) New investment in more efficient equipments
d) All above

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) What is generation planning? What are factors affecting this?
 - c) Explain the objectives of generation planning.
 - d) Define the term load forecasting. Categorize loads in power system.
 - e) Describe different methodologies used for load forecasting.

- Q.3 Solve any Two** **12**
- a) Which are the different techniques for load forecasting?
 - b) What do you understand by system planning? Explain main aims of different types of system planning.
 - c) Write note on Cost Analysis.

Section – II

- Q.4 Solve any Four** **16**
- a) What do you mean by Energy audit?
 - b) What do you mean by Demand side Management?
 - c) Explain New algorithms and methods relating to Load Forecasting.
 - d) Explain the objectives of generation planning. What are factors affecting this?
 - e) What is Transmission Planning?

- Q.5 Solve any Two** **12**
- a) Explain the Data required for Composite System Reliability and quality.
 - b) Write short note on listing of energy conservation opportunities (ECOs).
 - c) Explain New algorithms and methods relating to power system planning.

Seat No.	
-----------------	--

Set R

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any Four **16**

- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
- b) What is generation planning? What are factors affecting this?
- c) Explain the objectives of generation planning.
- d) Define the term load forecasting. Categorize loads in power system.
- e) Describe different methodologies used for load forecasting.

Q.3 Solve any Two **12**

- a) Which are the different techniques for load forecasting?
- b) What do you understand by system planning? Explain main aims of different types of system planning.
- c) Write note on Cost Analysis.

Section – II

Q.4 Solve any Four **16**

- a) What do you mean by Energy audit?
- b) What do you mean by Demand side Management?
- c) Explain New algorithms and methods relating to Load Forecasting.
- d) Explain the objectives of generation planning. What are factors affecting this?
- e) What is Transmission Planning?

Q.5 Solve any Two **12**

- a) Explain the Data required for Composite System Reliability and quality.
- b) Write short note on listing of energy conservation opportunities (ECOs).
- c) Explain New algorithms and methods relating to power system planning.

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) What is the commercial unit of Energy?
 - a) electron volt
 - b) W/s
 - c) KWh
 - d) Joule
- 2) Energy conservation means _____.
 - a) Using Energy more efficiently
 - b) Reducing wastage of Energy
 - c) New investment in more efficient equipments
 - d) All above
- 3) In order to have a lower cost of electrical energy generation _____.
 - a) The load factor and diversity factor should be low
 - b) The load factor should be low but diversity factor should be high
 - c) The load factor should be high but diversity factor should be low
 - d) The load factor and diversity factor should be high
- 4) The objective of energy management includes _____.
 - a) Minimising energy costs
 - b) Minimising waste
 - c) Minimising environmental degradation
 - d) All the above
- 5) The demand side management can be achieved by the technique of _____.
 - a) Time of day pricing and metering
 - b) Multi - utility power exchange model
 - c) Load management
 - d) All of these
- 6) The reduction of utility load primarily during peak demand is known as _____.
 - a) Peak clipping
 - b) Load shifting
 - c) Valley filling
 - d) MTP analysis
- 7) Distribution automation is used for _____.
 - a) Electrical quantities only
 - b) Physical quantities only
 - c) Both of the above
 - d) All of the above

Seat No.	
-----------------	--

Set S

**Fourth Y. (B Tech) (Sem-II) (New) (Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Power System Planning (197045804)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Solve any Four** **16**
- a) What do you mean by Distribution Automation? Explain tools of distribution automation.
 - b) What is generation planning? What are factors affecting this?
 - c) Explain the objectives of generation planning.
 - d) Define the term load forecasting. Categorize loads in power system.
 - e) Describe different methodologies used for load forecasting.

- Q.3 Solve any Two** **12**
- a) Which are the different techniques for load forecasting?
 - b) What do you understand by system planning? Explain main aims of different types of system planning.
 - c) Write note on Cost Analysis.

Section – II

- Q.4 Solve any Four** **16**
- a) What do you mean by Energy audit?
 - b) What do you mean by Demand side Management?
 - c) Explain New algorithms and methods relating to Load Forecasting.
 - d) Explain the objectives of generation planning. What are factors affecting this?
 - e) What is Transmission Planning?

- Q.5 Solve any Two** **12**
- a) Explain the Data required for Composite System Reliability and quality.
 - b) Write short note on listing of energy conservation opportunities (ECOs).
 - c) Explain New algorithms and methods relating to power system planning.

Seat No.	
----------	--

Set **P**

**Fourth Y. (B Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In which of the following methods, the data and power both are transferred with the same conductor?
 - a) Fibre optic communications
 - b) Cognitive radio
 - c) Power line communication
 - d) Cellular communication systems
- 2) According to IRIG B, Time synchronization accuracy requirement is upto _____.
 - a) 0.5 μ s
 - b) 1 μ s
 - c) 2 μ s
 - d) μ s
- 3) The boundaries of the customer domain typically consider which type of meters _____.
 - a) Energy Services Load
 - b) Energy Services Interface
 - c) Energy Services Demand
 - d) Wattmeter
- 4) Service Provider communicates with which domain?
 - a) Bulk generation
 - b) Distribution
 - c) Transmission
 - d) Customer
- 5) The transmission network is typically operated by _____.
 - a) Load Dispatch Centers
 - b) Distribution Company
 - c) Regional Load Dispatch Center
 - d) Generation Company
- 6) Energy Services Interface (ESI) communicates with other domain via: _____.
 - a) AMI infrastructure or Internet
 - b) Home Area Network
 - c) Local Area Network
 - d) None of the above

- 7) In the following which standard represent the Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks?
- a) IEEE Standard 1547.3 b) IEEE Standard 1547.4
c) IEEE Standard 1547.5 d) IEEE Standard 1547.6
- 8) What is the role of Gateway in smart grid architecture of IoT?
- a) Store data b) Manage data
c) Collect data d) Security
- 9) What is the role of Cloud in smart grid architecture of IoT?
- a) Store data b) Manage data
c) Collect data d) Security
- 10) Which protocol is used to link all the devices in the IoT?
- a) TCP/IP b) Network
c) UDP d) HTTP
- 11) The process by which the faulty of the system gets isolated from healthy part is called _____.
- a) Islanding b) Earthing
c) Isolating d) Detecting
- 12) Self-Healing can be done using _____.
- a) Damping unwanted power oscillations
b) Avoiding flow of the unwanted current from the grid
c) Rerouting power flow in order to avoid overloading in transmission line
d) All of the above
- 13) The main difference between Conventional Grid & Smart Grid _____.
- a) Unidirectional Flow of Power
b) Unidirectional and bidirectional flow of power and information respectively
c) Bidirectional flow of information
d) Bidirectional & Unidirectional flow of power
- 14) Functions of Smart Grid is _____.
- a) Technology maturity and risk in implementation
b) Efficiency and reliability of power system
c) Lack of awareness for consumers
d) All of the above

Seat No.	
-----------------	--

Set P

Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve the following questions. 16

- a) What is the need of Smart Grid? What will be the components of Smart Grid?
- b) What are the different opportunities and Barriers of Smart Grid in India?
- c) What are smart energy meters? Explain its function in smart grid.
- d) Explain phase measurement unit and its importance in smart grid.

Q.3 Solve any two of the following questions 12

- a) Explain how automatic meter reading can make the system Smarter.
- b) Explain the concept of Resilient and Self-Healing Grid.
- c) Explain EMC and its importance in smart grid.

Section – II

Q.4 Solve any four of the following questions 16

- a) Describe the concept, power quality conditioners related to smart grid.
- b) Explain the concept of Power Quality and EMC in Smart Grid.
- c) Explain how the reliability of smart grid can be enhanced by integrating IED into it.
- d) Describe web-based Power Quality Monitoring.
- e) Write short note on Cyber Controlled Smart Grid.

Q.5 Solve any two of the following questions 12

- a) What is Broadband over power line? Explain working and feature of broadband over power Line.
- b) Write a note on, "Real Time Pricing".
- c) Explain role of AMI in Smart Grid.

Seat No.	
-------------	--

**Fourth Y. (B Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) What is the role of Gateway in smart grid architecture of IoT?
 - a) Store data
 - b) Manage data
 - c) Collect data
 - d) Security
- 2) What is the role of Cloud in smart grid architecture of IoT?
 - a) Store data
 - b) Manage data
 - c) Collect data
 - d) Security
- 3) Which protocol is used to link all the devices in the IoT?
 - a) TCP/IP
 - b) Network
 - c) UDP
 - d) HTTP
- 4) The process by which the faulty of the system gets isolated from healthy part is called _____.
 - a) Islanding
 - b) Earthing
 - c) Isolating
 - d) Detecting
- 5) Self-Healing can be done using _____.
 - a) Damping unwanted power oscillations
 - b) Avoiding flow of the unwanted current from the grid
 - c) Rerouting power flow in order to avoid overloading in transmission line
 - d) All of the above
- 6) The main difference between Conventional Grid & Smart Grid _____.
 - a) Unidirectional Flow of Power
 - b) Unidirectional and bidirectional flow of power and information respectively
 - c) Bidirectional flow of information
 - d) Bidirectional & Unidirectional flow of power
- 7) Functions of Smart Grid is _____.
 - a) Technology maturity and risk in implementation
 - b) Efficiency and reliability of power system
 - c) Lack of awareness for consumers
 - d) All of the above

- 8) In which of the following methods, the data and power both are transferred with the same conductor?
- a) Fibre optic communications
 - b) Cognitive radio
 - c) Power line communication
 - d) Cellular communication systems
- 9) According to IRIG B, Time synchronization accuracy requirement is upto ____.
- a) 0.5 μ s
 - b) 1 μ s
 - c) 2 μ s
 - d) μ s
- 10) The boundaries of the customer domain typically consider which type of meters ____.
- a) Energy Services Load
 - b) Energy Services Interface
 - c) Energy Services Demand
 - d) Wattmeter
- 11) Service Provider communicates with which domain?
- a) Bulk generation
 - b) Distribution
 - c) Transmission
 - d) Customer
- 12) The transmission network is typically operated by ____.
- a) Load Dispatch Centers
 - b) Distribution Company
 - c) Regional Load Dispatch Center
 - d) Generation Company
- 13) Energy Services Interface (ESI) communicates with other domain via: ____.
- a) AMI infrastructure or Internet
 - b) Home Area Network
 - c) Local Area Network
 - d) None of the above
- 14) In the following which standard represent the Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks?
- a) IEEE Standard 1547.3
 - b) IEEE Standard 1547.4
 - c) IEEE Standard 1547.5
 - d) IEEE Standard 1547.6

Seat No.	
-----------------	--

Set Q

Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve the following questions. 16

- a) What is the need of Smart Grid? What will be the components of Smart Grid?
- b) What are the different opportunities and Barriers of Smart Grid in India?
- c) What are smart energy meters? Explain its function in smart grid.
- d) Explain phase measurement unit and its importance in smart grid.

Q.3 Solve any two of the following questions 12

- a) Explain how automatic meter reading can make the system Smarter.
- b) Explain the concept of Resilient and Self-Healing Grid.
- c) Explain EMC and its importance in smart grid.

Section – II

Q.4 Solve any four of the following questions 16

- a) Describe the concept, power quality conditioners related to smart grid.
- b) Explain the concept of Power Quality and EMC in Smart Grid.
- c) Explain how the reliability of smart grid can be enhanced by integrating IED into it.
- d) Describe web-based Power Quality Monitoring.
- e) Write short note on Cyber Controlled Smart Grid.

Q.5 Solve any two of the following questions 12

- a) What is Broadband over power line? Explain working and feature of broadband over power Line.
- b) Write a note on, "Real Time Pricing".
- c) Explain role of AMI in Smart Grid.

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) The process by which the faulty of the system gets isolated from healthy part is called _____.
 - a) Islanding
 - b) Earthing
 - c) Isolating
 - d) Detecting
- 2) Self-Healing can be done using _____.
 - a) Damping unwanted power oscillations
 - b) Avoiding flow of the unwanted current from the grid
 - c) Rerouting power flow in order to avoid overloading in transmission line
 - d) All of the above
- 3) The main difference between Conventional Grid & Smart Grid _____.
 - a) Unidirectional Flow of Power
 - b) Unidirectional and bidirectional flow of power and information respectively
 - c) Bidirectional flow of information
 - d) Bidirectional & Unidirectional flow of power
- 4) Functions of Smart Grid is _____.
 - a) Technology maturity and risk in implementation
 - b) Efficiency and reliability of power system
 - c) Lack of awareness for consumers
 - d) All of the above
- 5) In which of the following methods, the data and power both are transferred with the same conductor?
 - a) Fibre optic communications
 - b) Cognitive radio
 - c) Power line communication
 - d) Cellular communication systems
- 6) According to IRIG B, Time synchronization accuracy requirement is upto _____.
 - a) 0.5 μ s
 - b) 1 μ s
 - c) 2 μ s
 - d) μ s

- 7) The boundaries of the customer domain typically consider which type of meters _____.
- a) Energy Services Load
 - b) Energy Services Interface
 - c) Energy Services Demand
 - d) Wattmeter
- 8) Service Provider communicates with which domain?
- a) Bulk generation
 - b) Distribution
 - c) Transmission
 - d) Customer
- 9) The transmission network is typically operated by _____.
- a) Load Dispatch Centers
 - b) Distribution Company
 - c) Regional Load Dispatch Center
 - d) Generation Company
- 10) Energy Services Interface (ESI) communicates with other domain via: _____.
- a) AMI infrastructure or Internet
 - b) Home Area Network
 - c) Local Area Network
 - d) None of the above
- 11) In the following which standard represent the Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks?
- a) IEEE Standard 1547.3
 - b) IEEE Standard 1547.4
 - c) IEEE Standard 1547.5
 - d) IEEE Standard 1547.6
- 12) What is the role of Gateway in smart grid architecture of IoT?
- a) Store data
 - b) Manage data
 - c) Collect data
 - d) Security
- 13) What is the role of Cloud in smart grid architecture of IoT?
- a) Store data
 - b) Manage data
 - c) Collect data
 - d) Security
- 14) Which protocol is used to link all the devices in the IoT?
- a) TCP/IP
 - b) Network
 - c) UDP
 - d) HTTP

Seat No.	
-----------------	--

Set R

Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve the following questions. 16

- What is the need of Smart Grid? What will be the components of Smart Grid?
- What are the different opportunities and Barriers of Smart Grid in India?
- What are smart energy meters? Explain its function in smart grid.
- Explain phase measurement unit and its importance in smart grid.

Q.3 Solve any two of the following questions 12

- Explain how automatic meter reading can make the system Smarter.
- Explain the concept of Resilient and Self-Healing Grid.
- Explain EMC and its importance in smart grid.

Section – II

Q.4 Solve any four of the following questions 16

- Describe the concept, power quality conditioners related to smart grid.
- Explain the concept of Power Quality and EMC in Smart Grid.
- Explain how the reliability of smart grid can be enhanced by integrating IED into it.
- Describe web-based Power Quality Monitoring.
- Write short note on Cyber Controlled Smart Grid.

Q.5 Solve any two of the following questions 12

- What is Broadband over power line? Explain working and feature of broadband over power Line.
- Write a note on, "Real Time Pricing".
- Explain role of AMI in Smart Grid.

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem-II) (New/Old) (CBCS) Examination:
March/April-2024**

**ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)**

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No.1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Energy Services Interface (ESI) communicates with other domain via: _____.
 - a) AMI infrastructure or Internet
 - b) Home Area Network
 - c) Local Area Network
 - d) None of the above
- 2) In the following which standard represent the Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks?

a) IEEE Standard 1547.3	b) IEEE Standard 1547.4
c) IEEE Standard 1547.5	d) IEEE Standard 1547.6
- 3) What is the role of Gateway in smart grid architecture of IoT?

a) Store data	b) Manage data
c) Collect data	d) Security
- 4) What is the role of Cloud in smart grid architecture of IoT?

a) Store data	b) Manage data
c) Collect data	d) Security
- 5) Which protocol is used to link all the devices in the IoT?

a) TCP/IP	b) Network
c) UDP	d) HTTP
- 6) The process by which the faulty of the system gets isolated from healthy part is called _____.

a) Islanding	b) Earthing
c) Isolating	d) Detecting
- 7) Self-Healing can be done using _____.
 - a) Damping unwanted power oscillations
 - b) Avoiding flow of the unwanted current from the grid
 - c) Rerouting power flow in order to avoid overloading in transmission line
 - d) All of the above

- 8) The main difference between Conventional Grid & Smart Grid _____.
- a) Unidirectional Flow of Power
 - b) Unidirectional and bidirectional flow of power and information respectively
 - c) Bidirectional flow of information
 - d) Bidirectional & Unidirectional flow of power
- 9) Functions of Smart Grid is _____.
- a) Technology maturity and risk in implementation
 - b) Efficiency and reliability of power system
 - c) Lack of awareness for consumers
 - d) All of the above
- 10) In which of the following methods, the data and power both are transferred with the same conductor?
- a) Fibre optic communications
 - b) Cognitive radio
 - c) Power line communication
 - d) Cellular communication systems
- 11) According to IRIG B, Time synchronization accuracy requirement is upto _____.
- a) 0.5 μs
 - b) 1 μs
 - c) 2 μs
 - d) μs
- 12) The boundaries of the customer domain typically consider which type of meters _____.
- a) Energy Services Load
 - b) Energy Services Interface
 - c) Energy Services Demand
 - d) Wattmeter
- 13) Service Provider communicates with which domain?
- a) Bulk generation
 - b) Distribution
 - c) Transmission
 - d) Customer
- 14) The transmission network is typically operated by _____.
- a) Load Dispatch Centers
 - b) Distribution Company
 - c) Regional Load Dispatch Center
 - d) Generation Company

Seat No.	
-----------------	--

Set S

Fourth Y. (B Tech) (Sem-II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Smart Grid Technology (197045807)

Day & Date: Saturday, 11-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve the following questions. 16

- a) What is the need of Smart Grid? What will be the components of Smart Grid?
- b) What are the different opportunities and Barriers of Smart Grid in India?
- c) What are smart energy meters? Explain its function in smart grid.
- d) Explain phase measurement unit and its importance in smart grid.

Q.3 Solve any two of the following questions 12

- a) Explain how automatic meter reading can make the system Smarter.
- b) Explain the concept of Resilient and Self-Healing Grid.
- c) Explain EMC and its importance in smart grid.

Section – II

Q.4 Solve any four of the following questions 16

- a) Describe the concept, power quality conditioners related to smart grid.
- b) Explain the concept of Power Quality and EMC in Smart Grid.
- c) Explain how the reliability of smart grid can be enhanced by integrating IED into it.
- d) Describe web-based Power Quality Monitoring.
- e) Write short note on Cyber Controlled Smart Grid.

Q.5 Solve any two of the following questions 12

- a) What is Broadband over power line? Explain working and feature of broadband over power Line.
- b) Write a note on, "Real Time Pricing".
- c) Explain role of AMI in Smart Grid.

- 9) Two transformers operating in parallel will share the load depending upon Their _____
- a) leakage reactance b) per unit impedance
c) Efficiency d) rating
- 10) Polarization index is greater than _____ for class A insulation
- a) 1 b) 1.5
c) 2 d) 2.5
- 11) For good transformer oil, as per IS density should be equal to _____
- a) 0.5 gm/cm^3 b) 0.65 gm/cm^3
c) 0.89 gm/cm^3 d) 1.15 gm/cm^3
- 12) The arc voltage in C.B. is _____
- a) in the phase of arc current b) lagging the arc current by 90°
c) leading the arc current by 90° d) lagging the arc current by 180°
- 13) Depth of foundation is dependent on _____
- a) Cost of equipment b) Frequency
c) H.P. rating d) None of these
- 14) An isolator is installed _____
- a) to isolate one portion of circuit from another
b) usually on both sides of circuit breakers
c) as a substitute for a circuit breaker
d) both a) and b)

Seat No.	
-----------------	--

Set P

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Electrical Estimation and Installation (197045809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four: **16**

- a) Illustrate different factors for getting electric shock by the body of Electrical machines.
- b) Explain the concept of Tolerance? What are the different types of testing?
- c) Explain the various steps considered for estimation in detail.
- d) Why maintenance of electrical machine is necessary? Explain its categories
- e) State different factors on which severity of electric shock depends.

Q.3 Solve any two: **12**

- a) What are the precautions will you take if the person gets an electrical shock?
- b) Explain the necessity of conducting temp rise test and given limits of temp rise for different parts of 3 ph I.M. as per ISS.
- c) A room is to be wired for single phase ac. Supply directly taken from mains which has declared voltage of 200 volts. The length of the wire from the main switch to sight and plug points is 30 meters. lithe wire is to carry 5 amps determine the size of conductor.

Section – II

Q.4 Solve any four: **16**

- a) State the factors affecting preventive maintenance schedule along with its advantages.
- b) State the various methods of revarnishing. Explain the neat sketch vacuum impregnation method of varnishing.
- c) Explain the factors involved in designing the machine foundation.
- d) What are the effects of mis-alignment?
- e) Write the different factors affecting for the life of insulating materials.

Q.5 Solve any two: **12**

- a) Explain the procedure for conducting HV test on transformers?
- b) Prepare trouble shooting chart for transformer.
- c) Write the procedure for alignment for direct coupled drive.

Table 14.1
Current ratings and voltage drop for vulcanised rubber
PVC or polythene insulated or tough Rubber PVC lead
sheathed single core aluminum wires or cables

<i>Size of Conductor</i>		<i>2 Cables d.c. or Single-phase a.c.</i>		<i>3 or 4 cables of balanced 3-phase</i>		<i>4 Cables d.c.</i>	
<i>Normal area sq. mm.</i>	<i>Number and diameter of wire in mm.</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>
1.5	1/1.40	10	2.3	9	2.9	9	2.5
2.5	1/1.60	15	2.5	12	3.6	11	3.4
4.0	1/2.24	20	2.9	17	3.9	15	4.1
6.0	1/2.80	27	3.4	24	4.3	21	4.3
10.0	1/3.55	34	4.3	31	5.4	27	5.4
16.0	7/1.10	43	5.4	38	7.0	35	6.8
25.0	7/2.24	59	6.8	54	8.5	48	8.5
35.0	7/2.50	69	7.2	62	9.3	55	9.0
50.0	7/3.0] 19/1.80]	91	7.9	82	10.1	69	10.0

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Electrical Estimation and Installation (197045809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume the suitable data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) While conducting the short circuit test on transformer following side is short circuited _____
 - a) HV side
 - b) LV side
 - c) Primary side
 - d) Secondary Side
- 2) Two transformers operating in parallel will share the load depending upon Their _____
 - a) leakage reactance
 - b) per unit impedance
 - c) Efficiency
 - d) rating
- 3) Polarization index is greater than _____ for class A insulation
 - a) 1
 - b) 1.5
 - c) 2
 - d) 2.5
- 4) For good transformer oil, as per IS density should be equal to _____
 - a) 0.5 gm/cm³
 - b) 0.65 gm/cm³
 - c) 0.89 gm/cm³
 - d) 1.15 gm/cm³
- 5) The arc voltage in C.B. is _____
 - a) in the phase of arc current
 - b) lagging the arc current by 90°
 - c) leading the arc current by 90°
 - d) lagging the arc current by 180°
- 6) Depth of foundation is dependent on _____
 - a) Cost of equipment
 - b) Frequency
 - c) H.P. rating
 - d) None of these
- 7) An isolator is installed _____
 - a) to isolate one portion of circuit from another
 - b) usually on both sides of circuit breakers
 - c) as a substitute for a circuit breaker
 - d) both a) and b)
- 8) Severity of electric shock is mainly depend on _____
 - a) Voltage
 - b) Current
 - c) Type of supply
 - d) All of these

Seat No.	
----------	--

Set **Q**

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Electrical Estimation and Installation (197045809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four: **16**

- a) Illustrate different factors for getting electric shock by the body of Electrical machines.
- b) Explain the concept of Tolerance? What are the different types of testing?
- c) Explain the various steps considered for estimation in detail.
- d) Why maintenance of electrical machine is necessary? Explain its categories
- e) State different factors on which severity of electric shock depends.

Q.3 Solve any two: **12**

- a) What are the precautions will you take if the person gets an electrical shock?
- b) Explain the necessity of conducting temp rise test and given limits of temp rise for different parts of 3 ph I.M. as per ISS.
- c) A room is to be wired for single phase ac. Supply directly taken from mains which has declared voltage of 200 volts. The length of the wire from the main switch to sight and plug points is 30 meters. lithe wire is to carry 5 amps determine the size of conductor.

Section – II

Q.4 Solve any four: **16**

- a) State the factors affecting preventive maintenance schedule along with its advantages.
- b) State the various methods of revarnishing. Explain the neat sketch vacuum impregnation method of varnishing.
- c) Explain the factors involved in designing the machine foundation.
- d) What are the effects of mis-alignment?
- e) Write the different factors affecting for the life of insulating materials.

Q.5 Solve any two: **12**

- a) Explain the procedure for conducting HV test on transformers?
- b) Prepare trouble shooting chart for transformer.
- c) Write the procedure for alignment for direct coupled drive.

Table 14.1
Current ratings and voltage drop for vulcanised rubber
PVC or polythene insulated or tough Rubber PVC lead
sheathed single core aluminum wires or cables

Size of Conductor		2 Cables d.c. or Single-phase a.c.		3 or 4 cables of balanced 3-phase		4 Cables d.c.	
Normal area sq. mm.	Number and diameter of wire in mm.	Current rating in amperes	Approx length of run for volt-drop in meters	Current rating in amperes	Approx length of run for volt-drop in meters	Current rating in amperes	Approx length of run for volt-drop in meters
1.5	1/1.40	10	2.3	9	2.9	9	2.5
2.5	1/1.60	15	2.5	12	3.6	11	3.4
4.0	1/2.24	20	2.9	17	3.9	15	4.1
6.0	1/2.80	27	3.4	24	4.3	21	4.3
10.0	1/3.55	34	4.3	31	5.4	27	5.4
16.0	7/1.10	43	5.4	38	7.0	35	6.8
25.0	7/2.24	59	6.8	54	8.5	48	8.5
35.0	7/2.50	69	7.2	62	9.3	55	9.0
50.0	7/3.0] 19/1.80]	91	7.9	82	10.1	69	10.0

Seat No.	
-----------------	--

Set R

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Electrical Estimation and Installation (197045809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four: **16**

- a) Illustrate different factors for getting electric shock by the body of Electrical machines.
- b) Explain the concept of Tolerance? What are the different types of testing?
- c) Explain the various steps considered for estimation in detail.
- d) Why maintenance of electrical machine is necessary? Explain its categories
- e) State different factors on which severity of electric shock depends.

Q.3 Solve any two: **12**

- a) What are the precautions will you take if the person gets an electrical shock?
- b) Explain the necessity of conducting temp rise test and given limits of temp rise for different parts of 3 ph I.M. as per ISS.
- c) A room is to be wired for single phase ac. Supply directly taken from mains which has declared voltage of 200 volts. The length of the wire from the main switch to sight and plug points is 30 meters. lithe wire is to carry 5 amps determine the size of conductor.

Section – II

Q.4 Solve any four: **16**

- a) State the factors affecting preventive maintenance schedule along with its advantages.
- b) State the various methods of revarnishing. Explain the neat sketch vacuum impregnation method of varnishing.
- c) Explain the factors involved in designing the machine foundation.
- d) What are the effects of mis-alignment?
- e) Write the different factors affecting for the life of insulating materials.

Q.5 Solve any two: **12**

- a) Explain the procedure for conducting HV test on transformers?
- b) Prepare trouble shooting chart for transformer.
- c) Write the procedure for alignment for direct coupled drive.

Table 14.1
Current ratings and voltage drop for vulcanised rubber
PVC or polythene insulated or tough Rubber PVC lead
sheathed single core aluminum wires or cables

<i>Size of Conductor</i>		<i>2 Cables d.c. or Single-phase a.c.</i>		<i>3 or 4 cables of balanced 3-phase</i>		<i>4 Cables d.c.</i>	
<i>Normal area sq. mm.</i>	<i>Number and diameter of wire in mm.</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>
1.5	1/1.40	10	2.3	9	2.9	9	2.5
2.5	1/1.60	15	2.5	12	3.6	11	3.4
4.0	1/2.24	20	2.9	17	3.9	15	4.1
6.0	1/2.80	27	3.4	24	4.3	21	4.3
10.0	1/3.55	34	4.3	31	5.4	27	5.4
16.0	7/1.10	43	5.4	38	7.0	35	6.8
25.0	7/2.24	59	6.8	54	8.5	48	8.5
35.0	7/2.50	69	7.2	62	9.3	55	9.0
50.0	7/3.0] 19/1.80]	91	7.9	82	10.1	69	10.0

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Electrical Estimation and Installation (197045809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume the suitable data wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternative from the options. 14

- 1) Iron losses are considered to be the constant losses. It depends on _____
 - a) Voltage
 - b) Frequency
 - c) Both (a) and (b)
 - d) None of these
- 2) The rotational losses in d.c. machine is equal to the _____
 - a) Kinetic energy of armature
 - b) Half of the kinetic energy of armature
 - c) Square of the kinetic energy of armature
 - d) Rate of change of kinetic energy
- 3) While conducting the short circuit test on transformer following side is short circuited _____
 - a) HV side
 - b) LV side
 - c) Primary side
 - d) Secondary Side
- 4) Two transformers operating in parallel will share the load depending upon Their _____
 - a) leakage reactance
 - b) per unit impedance
 - c) Efficiency
 - d) rating
- 5) Polarization index is greater than _____ for class A insulation
 - a) 1
 - b) 1.5
 - c) 2
 - d) 2.5
- 6) For good transformer oil, as per IS density should be equal to _____
 - a) 0.5 gm/cm³
 - b) 0.65 gm/cm³
 - c) 0.89 gm/cm³
 - d) 1.15 gm/cm³
- 7) The arc voltage in C.B. is _____
 - a) in the phase of arc current
 - b) lagging the arc current by 90°
 - c) leading the arc current by 90°
 - d) lagging the arc current by 180°
- 8) Depth of foundation is dependent on _____
 - a) Cost of equipment
 - b) Frequency
 - c) H.P. rating
 - d) None of these

- 9) An isolator is installed _____
a) to isolate one portion of circuit from another
b) usually on both sides of circuit breakers
c) as a substitute for a circuit breaker
d) both a) and b)
- 10) Severity of electric shock is mainly depend on _____
a) Voltage
b) Current
c) Type of supply
d) All of these
- 11) Which section in the IE Act deals with the 'theft of energy'?
a) Section 39
b) Section 40
c) Section 43
d) Section 44
- 12) For what range is the underground service lines used?
a) Distance more than 25 m
b) Distance more than 100 m
c) Distance less than 1 km
d) Distance more than 1 km
- 13) The torque of induction motor is _____
a) Directly proportional to V
b) Directly proportional to V^2
c) Inversely proportional to V
d) Inversely proportional to V^2
- 14) Swinburne test is also called as _____
a) Load test
b) brake test
c) no load test
d) full load test

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Electrical Estimation and Installation (197045809)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four: **16**

- a) Illustrate different factors for getting electric shock by the body of Electrical machines.
- b) Explain the concept of Tolerance? What are the different types of testing?
- c) Explain the various steps considered for estimation in detail.
- d) Why maintenance of electrical machine is necessary? Explain its categories
- e) State different factors on which severity of electric shock depends.

Q.3 Solve any two: **12**

- a) What are the precautions will you take if the person gets an electrical shock?
- b) Explain the necessity of conducting temp rise test and given limits of temp rise for different parts of 3 ph I.M. as per ISS.
- c) A room is to be wired for single phase ac. Supply directly taken from mains which has declared voltage of 200 volts. The length of the wire from the main switch to sight and plug points is 30 meters. lithe wire is to carry 5 amps determine the size of conductor.

Section – II

Q.4 Solve any four: **16**

- a) State the factors affecting preventive maintenance schedule along with its advantages.
- b) State the various methods of revarnishing. Explain the neat sketch vacuum impregnation method of varnishing.
- c) Explain the factors involved in designing the machine foundation.
- d) What are the effects of mis-alignment?
- e) Write the different factors affecting for the life of insulating materials.

Q.5 Solve any two: **12**

- a) Explain the procedure for conducting HV test on transformers?
- b) Prepare trouble shooting chart for transformer.
- c) Write the procedure for alignment for direct coupled drive.

Table 14.1
Current ratings and voltage drop for vulcanised rubber
PVC or polythene insulated or tough Rubber PVC lead
sheathed single core aluminum wires or cables

<i>Size of Conductor</i>		<i>2 Cables d.c. or Single-phase a.c.</i>		<i>3 or 4 cables of balanced 3-phase</i>		<i>4 Cables d.c.</i>	
<i>Normal area sq. mm.</i>	<i>Number and diameter of wire in mm.</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>	<i>Current rating in amperes</i>	<i>Approx length of run for volt-drop in meters</i>
1.5	1/1.40	10	2.3	9	2.9	9	2.5
2.5	1/1.60	15	2.5	12	3.6	11	3.4
4.0	1/2.24	20	2.9	17	3.9	15	4.1
6.0	1/2.80	27	3.4	24	4.3	21	4.3
10.0	1/3.55	34	4.3	31	5.4	27	5.4
16.0	7/1.10	43	5.4	38	7.0	35	6.8
25.0	7/2.24	59	6.8	54	8.5	48	8.5
35.0	7/2.50	69	7.2	62	9.3	55	9.0
50.0	7/3.0] 19/1.80]	91	7.9	82	10.1	69	10.0

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Solve All MCQ Questions.

14

- 1) Which of the following is correct for proximity sensors?
 - a) Inductive type
 - b) Capacitive type
 - c) Ultrasonic wave type
 - d) All of the mentioned
- 2) Which of the following work is done by General purpose robot?
 - a) Part picking
 - b) Welding
 - c) Spray painting
 - d) All of the above
- 3) The following drive is used for lighter class of Robot _____.
 - a) Pneumatic drive
 - b) Hydraulic drive
 - c) Electric drive
 - d) All of the above
- 4) State model representation is possible using _____.
 - a) Physical variable
 - b) Phase variables
 - c) Canonical state variables
 - d) All of the mentioned
- 5) A sensor is a device that converts _____.
 - a) Physical quantity into measurable signals
 - b) Physical quantity into mechanical signal
 - c) Electrical signal into physical quantity
 - d) Physical quantity into electric signal only
- 6) In the modem controller, derivative action is applied only to the:
 - a) Error
 - b) Measurement
 - c) Setpoint
 - d) Integral circuit
- 7) Which among the following are the interconnected units of state diagram representation?
 - a) Scalars
 - b) Adders
 - c) Integrators
 - d) All of the above
- 8) A Robot is a _____.
 - a) Programmable
 - b) multi-functional manipulator
 - c) Both a) and b)
 - d) None of the above

Seat No.	
----------	--

Set

P

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four:** **16**
- a) Explain Ratio control with neat sketch.
 - b) Explain operation of PD control with neat sketch.
 - c) Explain cascade control with block diagram.
 - d) Explain split range control with block diagram.
 - e) Write a note on Controller Tuning.
- Q.3 Attempt any two:** **12**
- a) Explain Multiloop control with block diagram.
 - b) What are the different methods available for tuning of PID controller?
Explain relay feedback method in details.
 - c) Explain feed forward control loop with neat sketch

Section – II

- Q.4 Attempt any Four:** **16**
- a) Explain laws of robotics.
 - b) Write a short note on Direct and inverse kinematics problems.
 - c) Explain the Accuracy and repeatability characteristics of Robotics
 - d) Explain strain gauge-based force-torque sensors with neat sketch.
 - e) Explain advantages & dis-advantages of robot.
- Q.5 Attempt any Two:** **12**
- a) What is purpose of sensors? Explain internal and external sensors.
 - b) Explain in details Tractrix based approach for fixed and free robots and multi- body system.
 - c) List different types of Actuators and Explain any two in details.

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Solve All MCQ Questions.

14

- 1) A Robot is a _____.
 - a) Programmable
 - b) multi-functional manipulator
 - c) Both a) and b)
 - d) None of the above
- 2) Automatic controllers operate on the difference between set point and measurement, which is called _____.
 - a) Offset
 - b) Bias
 - c) Error
 - d) Feedback
- 3) The main objective of a process control is _____.
 - a) To control physical parameters
 - b) To control mechanical parameters
 - c) To control optical parameters
 - d) To control electrical parameters
- 4) The input of a controller is _____.
 - a) Sensed signal
 - b) Error signal
 - c) Desired variable value
 - d) Signal of fixed amplitude not dependent on desired variable value
- 5) A properly designed feedforward control system:
 - a) Should be applied to every process
 - b) Should be employed when its use can be justified economically and technologically
 - c) Is always easier to adjust than a feedback system
 - d) Will always result in more economical process operation
- 6) Internal state sensors are used for measuring _____ of the end effector.
 - a) Position
 - b) Position & Velocity
 - c) Velocity & Acceleration
 - d) Position, Velocity & Acceleration
- 7) Which of the motions in actuators are preferred?
 - a) Rotary
 - b) Stationary
 - c) Non-Stationary
 - d) Translator

Seat No.	
----------	--

Set

Q

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four:** **16**
- a) Explain Ratio control with neat sketch.
 - b) Explain operation of PD control with neat sketch.
 - c) Explain cascade control with block diagram.
 - d) Explain split range control with block diagram.
 - e) Write a note on Controller Tuning.
- Q.3 Attempt any two:** **12**
- a) Explain Multiloop control with block diagram.
 - b) What are the different methods available for tuning of PID controller?
Explain relay feedback method in details.
 - c) Explain feed forward control loop with neat sketch

Section – II

- Q.4 Attempt any Four:** **16**
- a) Explain laws of robotics.
 - b) Write a short note on Direct and inverse kinematics problems.
 - c) Explain the Accuracy and repeatability characteristics of Robotics
 - d) Explain strain gauge-based force-torque sensors with neat sketch.
 - e) Explain advantages & dis-advantages of robot.
- Q.5 Attempt any Two:** **12**
- a) What is purpose of sensors? Explain internal and external sensors.
 - b) Explain in details Tractrix based approach for fixed and free robots and multi- body system.
 - c) List different types of Actuators and Explain any two in details.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Solve All MCQ Questions.

14

- 1) The input of a controller is _____.
 - a) Sensed signal
 - b) Error signal
 - c) Desired variable value
 - d) Signal of fixed amplitude not dependent on desired variable value
- 2) A properly designed feedforward control system:
 - a) Should be applied to every process
 - b) Should be employed when its use can be justified economically and technologically
 - c) Is always easier to adjust than a feedback system
 - d) Will always result in more economical process operation
- 3) Internal state sensors are used for measuring _____ of the end effector.
 - a) Position
 - b) Position & Velocity
 - c) Velocity & Acceleration
 - d) Position, Velocity & Acceleration
- 4) Which of the motions in actuators are preferred?
 - a) Rotary
 - b) Stationary
 - c) Non-Stationary
 - d) Translator
- 5) Which of the following is correct for proximity sensors?
 - a) Inductive type
 - b) Capacitive type
 - c) Ultrasonic wave type
 - d) All of the mentioned
- 6) Which of the following work is done by General purpose robot?
 - a) Part picking
 - b) Welding
 - c) Spray painting
 - d) All of the above
- 7) The following drive is used for lighter class of Robot _____.
 - a) Pneumatic drive
 - b) Hydraulic drive
 - c) Electric drive
 - d) All of the above
- 8) State model representation is possible using _____.
 - a) Physical variable
 - b) Phase variables
 - c) Canonical state variables
 - d) All of the mentioned

- 9) A sensor is a device that converts _____.
- a) Physical quantity into measurable signals
 - b) Physical quantity into mechanical signal
 - c) Electrical signal into physical quantity
 - d) Physical quantity into electric signal only
- 10) In the modern controller, derivative action is applied only to the:
- a) Error
 - b) Measurement
 - c) Setpoint
 - d) Integral circuit
- 11) Which among the following are the interconnected units of state diagram representation?
- a) Scalars
 - b) Adders
 - c) Integrators
 - d) All of the above
- 12) A Robot is a _____.
- a) Programmable
 - b) multi-functional manipulator
 - c) Both a) and b)
 - d) None of the above
- 13) Automatic controllers operate on the difference between set point and measurement, which is called _____.
- a) Offset
 - b) Bias
 - c) Error
 - d) Feedback
- 14) The main objective of a process control is _____.
- a) To control physical parameters
 - b) To control mechanical parameters
 - c) To control optical parameters
 - d) To control electrical parameters

Seat No.	
-------------	--

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four:** **16**
- a) Explain Ratio control with neat sketch.
 - b) Explain operation of PD control with neat sketch.
 - c) Explain cascade control with block diagram.
 - d) Explain split range control with block diagram.
 - e) Write a note on Controller Tuning.
- Q.3 Attempt any two:** **12**
- a) Explain Multiloop control with block diagram.
 - b) What are the different methods available for tuning of PID controller?
Explain relay feedback method in details.
 - c) Explain feed forward control loop with neat sketch

Section – II

- Q.4 Attempt any Four:** **16**
- a) Explain laws of robotics.
 - b) Write a short note on Direct and inverse kinematics problems.
 - c) Explain the Accuracy and repeatability characteristics of Robotics
 - d) Explain strain gauge-based force-torque sensors with neat sketch.
 - e) Explain advantages & dis-advantages of robot.
- Q.5 Attempt any Two:** **12**
- a) What is purpose of sensors? Explain internal and external sensors.
 - b) Explain in details Tractrix based approach for fixed and free robots and multi- body system.
 - c) List different types of Actuators and Explain any two in details.

Seat No.	
----------	--

Set **S**

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Solve All MCQ Questions.

14

- 1) In the modem controller, derivative action is applied only to the:
 - a) Error
 - b) Measurement
 - c) Setpoint
 - d) Integral circuit
- 2) Which among the following are the interconnected units of state diagram representation?
 - a) Scalars
 - b) Adders
 - c) Integrators
 - d) All of the above
- 3) A Robot is a _____.
 - a) Programmable
 - b) multi-functional manipulator
 - c) Both a) and b)
 - d) None of the above
- 4) Automatic controllers operate on the difference between set point and measurement, which is called _____.
 - a) Offset
 - b) Bias
 - c) Error
 - d) Feedback
- 5) The main objective of a process control is _____.
 - a) To control physical parameters
 - b) To control mechanical parameters
 - c) To control optical parameters
 - d) To control electrical parameters
- 6) The input of a controller is _____.
 - a) Sensed signal
 - b) Error signal
 - c) Desired variable value
 - d) Signal of fixed amplitude not dependent on desired variable value
- 7) A properly designed feedforward control system:
 - a) Should be applied to every process
 - b) Should be employed when its use can be justified economically and technologically
 - c) Is always easier to adjust than a feedback system
 - d) Will always result in more economical process operation

- 8) Internal state sensors are used for measuring _____ of the end effector.
- a) Position
 - b) Position & Velocity
 - c) Velocity & Acceleration
 - d) Position, Velocity & Acceleration
- 9) Which of the motions in actuators are preferred?
- a) Rotary
 - b) Stationary
 - c) Non-Stationary
 - d) Translator
- 10) Which of the following is correct for proximity sensors?
- a) Inductive type
 - b) Capacitive type
 - c) Ultrasonic wave type
 - d) All of the mentioned
- 11) Which of the following work is done by General purpose robot?
- a) Part picking
 - b) Welding
 - c) Spray painting
 - d) All of the above
- 12) The following drive is used for lighter class of Robot _____.
- a) Pneumatic drive
 - b) Hydraulic drive
 - c) Electric drive
 - d) All of the above
- 13) State model representation is possible using _____.
- a) Physical variable
 - b) Phase variables
 - c) Canonical state variables
 - d) All of the mentioned
- 14) A sensor is a device that converts _____.
- a) Physical quantity into measurable signals
 - b) Physical quantity into mechanical signal
 - c) Electrical signal into physical quantity
 - d) Physical quantity into electric signal only

Seat No.	
-------------	--

Set

S

**Fourth Y. (B.Tech.) (Sem - II) (New/Old) (CBCS) Examination:
March/April-2024**

ELECTRICAL ENGINEERING

Instrumentation Process Control & Robotics (197045810)

Day & Date: Monday, 13-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt any four:** **16**
- a) Explain Ratio control with neat sketch.
 - b) Explain operation of PD control with neat sketch.
 - c) Explain cascade control with block diagram.
 - d) Explain split range control with block diagram.
 - e) Write a note on Controller Tuning.
- Q.3 Attempt any two:** **12**
- a) Explain Multiloop control with block diagram.
 - b) What are the different methods available for tuning of PID controller?
Explain relay feedback method in details.
 - c) Explain feed forward control loop with neat sketch

Section – II

- Q.4 Attempt any Four:** **16**
- a) Explain laws of robotics.
 - b) Write a short note on Direct and inverse kinematics problems.
 - c) Explain the Accuracy and repeatability characteristics of Robotics
 - d) Explain strain gauge-based force-torque sensors with neat sketch.
 - e) Explain advantages & dis-advantages of robot.
- Q.5 Attempt any Two:** **12**
- a) What is purpose of sensors? Explain internal and external sensors.
 - b) Explain in details Tractrix based approach for fixed and free robots and multi- body system.
 - c) List different types of Actuators and Explain any two in details.

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Power System Dynamics and Stability (197045811)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options.

14

- 1) How can we check upon the transient stability of a power system?
 - a) By checking variation in load angle
 - b) By checking variation of real power with load angle
 - c) Checking variation in load angle and real power
 - d) Checking variation in load angle or real power
- 2) How can we improve the steady state stability of the synchronous generator for a better performance?
 - a) Increasing the excitation
 - b) Increasing reactance
 - c) Decreasing moment of inertia
 - d) Increasing moment of inertia
- 3) What does the steady state stability of a power system signify?
 - a) Maintaining the rated voltage
 - b) Maintaining rated frequency
 - c) Maintaining a synchronism between machines and tie-lines
 - d) All of the mentioned
- 4) By using which component can the transient stability limit of a power system be improved?
 - a) Series resistance
 - b) Series capacitor
 - c) Series inductor
 - d) Shunt resistance
- 5) Which among these is a classification of power system stability?
 - a) Frequency stability
 - b) Voltage stability
 - c) Rotor angle stability
 - d) All of these
- 6) The Power Systems are operated with power angle around _____
 - a) 10°
 - b) 30°
 - c) 70°
 - d) 80°

- 7) Which one of the following enhances the transient stability of a system the most?
- proper choice of make and break capabilities of the circuit breakers
 - installation of 3-pole auto-reclose circuit breakers
 - installation of single pole auto-reclose circuit breakers
 - None of the Above
- 8) In a single connected to infinite bus bar system, alternator voltage is 1.5 pu and its reactance is 1.0 pu are connected through a line reactance of 0.3 pu. The maximum steady state power transfer is _____
- 1.154 pu
 - 5.0 pu
 - 1.5 pu
 - 0.76 pu
- 9) Equal area criteria and Swing equation are used for stability respectively.
- Steady state, Transient
 - Transient, Steady state
 - Both are used for steady state stability
 - Both are used for transient stability
- 10) The angle δ in the swing equation of a synchronous generator is the _____
- angle between stator voltage and current.
 - angular displacement of the rotor with respect to the stator
 - angular displacement of the stator mmf with respect to a synchronously rotating axis.
 - angular displacement of an axis fixed to the rotor with respect to a synchronously rotating axis.
- 11) Mechanical governors have _____ moving parts than hydraulic governors.
- less
 - more
 - equal
 - none of the mentioned
- 12) In Park's transformation _____
- stator variables are transformed to a synchronously rotating reference frame fixed in the rotor
 - rotor variables are transformed to a stationary reference frame fixed in the rotor
 - stator variables are transformed to an arbitrary reference frame
 - rotor variables are transformed to an arbitrary reference frame
- 13) Which one of the following is true?
- Steady State Stability limit is greater than Transient Stability limit
 - Steady State Stability limit is equal to Transient Stability limit
 - Steady State Stability limit is less than Transient Stability limit
 - None of the above
- 14) Hydraulic governors are sensitive when compared to mechanical governors.
- Less
 - More
 - Equal
 - none of the mentioned

Seat No.	
-----------------	--

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Power System Dynamics and Stability (197045811)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- a) Why Park's transformation is required? Apply it to transform electrical and mechanical equations of synchronous machine.
- b) Explain with example need of reduced model in stability analysis.
- c) Distinguish between transient and dynamic stability.
- d) Draw and explain functional block diagram of an excitation control system.
- e) Formulate sub-transient and transient inductances and also write about time constants.

Q.3 Solve any two of the following. 12

- a) State types and explain with basic diagrams of following:
 - i) Exciters
 - ii) Voltage regulators
- b) Explain with block diagram typical excitation system configuration.
- c) Explain in detail importance of stability in power system operation and control.

Section – II

Q.4 Solve any four of the following. 16

- a) Compare: coherent and non-coherent machines.
- b) Explain mechanical-hydraulic governor for a hydro turbine with schematic diagram.
- c) Explain the role of auto reclosing circuit breaker in stability enhancement.
- d) Explain in detail function of speed governing system.
- e) A 50 Hz, four pole turbo-generator rated 100 MVA, 11 kV has an inertia constant of 8.0 MJ/MVA.
 - i) Find the stored energy in the rotor at synchronous speed.
 - ii) If the mechanical input is suddenly raised to 80 MW for an electrical load of 50 MW, find rotor acceleration, neglecting mechanical and electrical losses.

Q.5 Solve any two of the following.

- a) Develop the swing equation of synchronous machine with its linearization.
- b) List various methods are used to improve steady state stability and any one method in detail.
- c) Differentiate between steady state stability and transient stability of a power system. Discuss the factors that affect
 - i) steady state stability and
 - ii) transient stability of a power system

Seat No.	
----------	--

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Power System Dynamics and Stability (197045811)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) In a single connected to infinite bus bar system, alternator voltage is 1.5 pu and its reactance is 1.0 pu are connected through a line reactance of 0.3 pu. The maximum steady state power transfer is _____
 - a) 1.154 pu
 - b) 5.0 pu
 - c) 1.5 pu
 - d) 0.76 pu
- 2) Equal area criteria and Swing equation are used for stability respectively.
 - a) Steady state, Transient
 - b) Transient, Steady state,
 - c) Both are used for steady state stability
 - d) Both are used for transient stability
- 3) The angle δ in the swing equation of a synchronous generator is the _____
 - a) angle between stator voltage and current.
 - b) angular displacement of the rotor with respect to the stator
 - c) angular displacement of the stator mmf with respect to a synchronously rotating axis.
 - d) angular displacement of an axis fixed to the rotor with respect to a synchronously rotating axis.
- 4) Mechanical governors have _____ moving parts than hydraulic governors.
 - a) less
 - b) more
 - c) equal
 - d) none of the mentioned
- 5) In Park's transformation _____
 - a) stator variables are transformed to a synchronously rotating reference frame fixed in the rotor
 - b) rotor variables are transformed to a stationary reference frame fixed in the rotor
 - c) stator variables are transformed to an arbitrary reference frame
 - d) rotor variables are transformed to an arbitrary reference frame

- 6) Which one of the following is true?
- a) Steady State Stability limit is greater than Transient Stability limit
 - b) Steady State Stability limit is equal to Transient Stability limit
 - c) Steady State Stability limit is less than Transient Stability limit
 - d) None of the above
- 7) Hydraulic governors are sensitive when compared to mechanical governors.
- a) Less
 - b) More
 - c) Equal
 - d) none of the mentioned
- 8) How can we check upon the transient stability of a power system?
- a) By checking variation in load angle
 - b) By checking variation of real power with load angle
 - c) Checking variation in load angle and real power
 - d) Checking variation in load angle or real power
- 9) How can we improve the steady state stability of the synchronous generator for a better performance?
- a) Increasing the excitation
 - b) Increasing reactance
 - c) Decreasing moment of inertia
 - d) Increasing moment of inertia
- 10) What does the steady state stability of a power system signify?
- a) Maintaining the rated voltage
 - b) Maintaining rated frequency
 - c) Maintaining a synchronism between machines and tie-lines
 - d) All of the mentioned
- 11) By using which component can the transient stability limit of a power system be improved?
- a) Series resistance
 - b) Series capacitor
 - c) Series inductor
 - d) Shunt resistance
- 12) Which among these is a classification of power system stability?
- a) Frequency stability
 - b) Voltage stability
 - c) Rotor angle stability
 - d) All of these
- 13) The Power Systems are operated with power angle around _____
- a) 10°
 - b) 30°
 - c) 70°
 - d) 80°
- 14) Which one of the following enhances the transient stability of a system the most?
- a) proper choice of make and break capabilities of the circuit breakers
 - b) installation of 3-pole auto-reclose circuit breakers
 - c) installation of single pole auto-reclose circuit breakers
 - d) None of the Above

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Power System Dynamics and Stability (197045811)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- a) Why Park's transformation is required? Apply it to transform electrical and mechanical equations of synchronous machine.
- b) Explain with example need of reduced model in stability analysis.
- c) Distinguish between transient and dynamic stability.
- d) Draw and explain functional block diagram of an excitation control system.
- e) Formulate sub-transient and transient inductances and also write about time constants.

Q.3 Solve any two of the following. 12

- a) State types and explain with basic diagrams of following:
 - i) Exciters
 - ii) Voltage regulators
- b) Explain with block diagram typical excitation system configuration.
- c) Explain in detail importance of stability in power system operation and control.

Section – II

Q.4 Solve any four of the following. 16

- a) Compare: coherent and non-coherent machines.
- b) Explain mechanical-hydraulic governor for a hydro turbine with schematic diagram.
- c) Explain the role of auto reclosing circuit breaker in stability enhancement.
- d) Explain in detail function of speed governing system.
- e) A 50 Hz, four pole turbo-generator rated 100 MVA, 11 kV has an inertia constant of 8.0 MJ/MVA.
 - i) Find the stored energy in the rotor at synchronous speed.
 - ii) If the mechanical input is suddenly raised to 80 MW for an electrical load of 50 MW, find rotor acceleration, neglecting mechanical and electrical losses.

Q.5 Solve any two of the following.

- a) Develop the swing equation of synchronous machine with its linearization.
- b) List various methods are used to improve steady state stability and any one method in detail.
- c) Differentiate between steady state stability and transient stability of a power system. Discuss the factors that affect
 - i) steady state stability and
 - ii) transient stability of a power system

Seat No.	
-------------	--

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Power System Dynamics and Stability (197045811)

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks:14

Q.1 Choose the correct alternatives from the given options. 14

- 1) Mechanical governors have _____ moving parts than hydraulic governors.
 - a) less
 - b) more
 - c) equal
 - d) none of the mentioned
- 2) In Park's transformation _____
 - a) stator variables are transformed to a synchronously rotating reference frame fixed in the rotor
 - b) rotor variables are transformed to a stationary reference frame fixed in the rotor
 - c) stator variables are transformed to an arbitrary reference frame
 - d) rotor variables are transformed to an arbitrary reference frame
- 3) Which one of the following is true?
 - a) Steady State Stability limit is greater than Transient Stability limit
 - b) Steady State Stability limit is equal to Transient Stability limit
 - c) Steady State Stability limit is less than Transient Stability limit
 - d) None of the above
- 4) Hydraulic governors are sensitive when compared to mechanical governors.
 - a) Less
 - b) More
 - c) Equal
 - d) none of the mentioned
- 5) How can we check upon the transient stability of a power system?
 - a) By checking variation in load angle
 - b) By checking variation of real power with load angle
 - c) Checking variation in load angle and real power
 - d) Checking variation in load angle or real power
- 6) How can we improve the steady state stability of the synchronous generator for a better performance?
 - a) Increasing the excitation
 - b) Increasing reactance
 - c) Decreasing moment of inertia
 - d) Increasing moment of inertia

- 7) What does the steady state stability of a power system signify?
- Maintaining the rated voltage
 - Maintaining rated frequency
 - Maintaining a synchronism between machines and tie-lines
 - All of the mentioned
- 8) By using which component can the transient stability limit of a power system be improved?
- Series resistance
 - Series capacitor
 - Series inductor
 - Shunt resistance
- 9) Which among these is a classification of power system stability?
- Frequency stability
 - Voltage stability
 - Rotor angle stability
 - All of these
- 10) The Power Systems are operated with power angle around _____
- 10°
 - 30°
 - 70°
 - 80°
- 11) Which one of the following enhances the transient stability of a system the most?
- proper choice of make and break capabilities of the circuit breakers
 - installation of 3-pole auto-reclose circuit breakers
 - installation of single pole auto-reclose circuit breakers
 - None of the Above
- 12) In a single connected to infinite bus bar system, alternator voltage is 1.5 pu and its reactance is 1.0 pu are connected through a line reactance of 0.3 pu. The maximum steady state power transfer is _____
- 1.154 pu
 - 5.0 pu
 - 1.5 pu
 - 0.76 pu
- 13) Equal area criteria and Swing equation are used for stability respectively.
- Steady state, Transient
 - Transient, Steady state₁
 - Both are used for steady state stability
 - Both are used for transient stability
- 14) The angle δ in the swing equation of a synchronous generator is the _____
- angle between stator voltage and current.
 - angular displacement of the rotor with respect to the stator
 - angular displacement of the stator mmf with respect to a synchronously rotating axis.
 - angular displacement of an axis fixed to the rotor with respect to a synchronously rotating axis.

Seat No.	
----------	--

Set **R**

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING

Power System Dynamics and Stability (197045811)

Day & Date: Monday, 13-05-2024

Max. Marks: 56

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- a) Why Park's transformation is required? Apply it to transform electrical and mechanical equations of synchronous machine.
- b) Explain with example need of reduced model in stability analysis.
- c) Distinguish between transient and dynamic stability.
- d) Draw and explain functional block diagram of an excitation control system.
- e) Formulate sub-transient and transient inductances and also write about time constants.

Q.3 Solve any two of the following. 12

- a) State types and explain with basic diagrams of following:
 - i) Exciters
 - ii) Voltage regulators
- b) Explain with block diagram typical excitation system configuration.
- c) Explain in detail importance of stability in power system operation and control.

Section – II

Q.4 Solve any four of the following. 16

- a) Compare: coherent and non-coherent machines.
- b) Explain mechanical-hydraulic governor for a hydro turbine with schematic diagram.
- c) Explain the role of auto reclosing circuit breaker in stability enhancement.
- d) Explain in detail function of speed governing system.
- e) A 50 Hz, four pole turbo-generator rated 100 MVA, 11 kV has an inertia constant of 8.0 MJ/MVA.
 - i) Find the stored energy in the rotor at synchronous speed.
 - ii) If the mechanical input is suddenly raised to 80 MW for an electrical load of 50 MW, find rotor acceleration, neglecting mechanical and electrical losses.

Q.5 Solve any two of the following.

- a) Develop the swing equation of synchronous machine with its linearization.
- b) List various methods are used to improve steady state stability and any one method in detail.
- c) Differentiate between steady state stability and transient stability of a power system. Discuss the factors that affect
 - i) steady state stability and
 - ii) transient stability of a power system

- 7) In Park's transformation _____
- stator variables are transformed to a synchronously rotating reference frame fixed in the rotor
 - rotor variables are transformed to a stationary reference frame fixed in the rotor
 - stator variables are transformed to an arbitrary reference frame
 - rotor variables are transformed to an arbitrary reference frame
- 8) Which one of the following is true?
- Steady State Stability limit is greater than Transient Stability limit
 - Steady State Stability limit is equal to Transient Stability limit
 - Steady State Stability limit is less than Transient Stability limit
 - None of the above
- 9) Hydraulic governors are sensitive when compared to mechanical governors.
- Less
 - More
 - Equal
 - none of the mentioned
- 10) How can we check upon the transient stability of a power system?
- By checking variation in load angle
 - By checking variation of real power with load angle
 - Checking variation in load angle and real power
 - Checking variation in load angle or real power
- 11) How can we improve the steady state stability of the synchronous generator for a better performance?
- Increasing the excitation
 - Increasing reactance
 - Decreasing moment of inertia
 - Increasing moment of inertia
- 12) What does the steady state stability of a power system signify?
- Maintaining the rated voltage
 - Maintaining rated frequency
 - Maintaining a synchronism between machines and tie-lines
 - All of the mentioned
- 13) By using which component can the transient stability limit of a power system be improved?
- Series resistance
 - Series capacitor
 - Series inductor
 - Shunt resistance
- 14) Which among these is a classification of power system stability?
- Frequency stability
 - Voltage stability
 - Rotor angle stability
 - All of these

Seat No.	
-----------------	--

Set S

**Fourth Y. (B Tech) (Sem - II) (New/Old) (CBCS) Examination:
March/April 2024**

ELECTRICAL ENGINEERING**Power System Dynamics and Stability (197045811)**

Day & Date: Monday, 13-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

Q.2 Solve any four of the following. 16

- Why Park's transformation is required? Apply it to transform electrical and mechanical equations of synchronous machine.
- Explain with example need of reduced model in stability analysis.
- Distinguish between transient and dynamic stability.
- Draw and explain functional block diagram of an excitation control system.
- Formulate sub-transient and transient inductances and also write about time constants.

Q.3 Solve any two of the following. 12

- State types and explain with basic diagrams of following:
 - Exciters
 - Voltage regulators
- Explain with block diagram typical excitation system configuration.
- Explain in detail importance of stability in power system operation and control.

Section – II

Q.4 Solve any four of the following. 16

- Compare: coherent and non-coherent machines.
- Explain mechanical-hydraulic governor for a hydro turbine with schematic diagram.
- Explain the role of auto reclosing circuit breaker in stability enhancement.
- Explain in detail function of speed governing system.
- A 50 Hz, four pole turbo-generator rated 100 MVA, 11 kV has an inertia constant of 8.0 MJ/MVA.
 - Find the stored energy in the rotor at synchronous speed.
 - If the mechanical input is suddenly raised to 80 MW for an electrical load of 50 MW, find rotor acceleration, neglecting mechanical and electrical losses.

Q.5 Solve any two of the following.

- a) Develop the swing equation of synchronous machine with its linearization.
- b) List various methods are used to improve steady state stability and any one method in detail.
- c) Differentiate between steady state stability and transient stability of a power system. Discuss the factors that affect
 - i) steady state stability and
 - ii) transient stability of a power system

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 3) Figures to the right indicates full marks.
 4) Draw flow charts wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is the role of the catalyst in a fuel cell?
 - a) It conducts electrons from the cathode to the anode.
 - b) It facilitates the reaction between hydrogen and oxygen.
 - c) It blocks the flow of protons through the membrane.
 - d) It stores energy for later use.
- 2) What is the primary function of a fuel cell?
 - a) To store energy
 - b) To convert fuel into heat
 - c) To convert chemical potential energy into electrical energy
 - d) To generate mechanical power
- 3) Which component in an electric vehicle's traction control system is responsible for processing data from various sensors and making real-time control decisions?

a) Battery pack	b) Electric motor
c) Traction control module	d) Headlights
- 4) Which of the following is NOT a potential benefit of traction control in electric vehicles?

a) Improved safety	b) Enhanced efficiency
c) Extended battery life	d) Better handling and control
- 5) What is the minimum voltage required to trigger a thyristor into the conducting state?

a) 0V	b) Half the supply voltage
c) Equal to the supply voltage	d) Double the supply voltage
- 6) Which semiconductor device is often referred to as a "latching" or "snap-action" switch and is commonly used in applications like motor control and lighting?

a) Diode	b) Thyristor
c) BJT	d) MOSFET

- 7) What is path control in the context of robotics and automation?
- a) Managing road traffic signals
 - b) Navigating through GPS coordinates
 - c) Manipulating objects along a predefined trajectory
 - d) Controlling the speed of a vehicle
- 8) What is one advantage of using machine learning algorithms for path control in autonomous systems?
- a) Limited adaptability to changing environments
 - b) Dependence on human intervention
 - c) Improved adaptability and learning from experience
 - d) Slower decision-making compared to traditional algorithms
- 9) What does ADAS technology aim to reduce in driving?
- a) Fuel efficiency
 - b) Driver distraction
 - c) Vehicle maintenance costs
 - d) Traffic congestion
- 10) Which of the following is an advantage of regenerative braking in electric vehicles?
- a) Increased brake pad wear
 - b) Improved energy efficiency and extended range
 - c) Reduced battery capacity
 - d) Higher energy consumption
- 11) When it comes to electric vehicle safety, what should first responders be trained to do?
- a) Approach the vehicle without protective gear
 - b) Assume that EV accidents are identical to accidents involving traditional vehicles
 - c) Identify and follow proper shutdown procedures for the high-voltage system
 - d) Open the vehicle's battery compartment to check for damage
- 12) What is the primary focus of intra-vehicle security measures?
- a) Protecting the vehicle from external threats
 - b) Protecting the vehicle's occupants and systems from internal threats
 - c) Ensuring vehicle performance
 - d) Enhancing fuel efficiency
- 13) What advantage does battery swap offer in terms of charging time compared to traditional plug-in charging?
- a) Battery swap takes longer to complete
 - b) Battery swap is faster and typically takes just a few minutes
 - c) Battery swap requires the EV to be stationary for hours
 - d) Battery swap reduces the vehicle's driving range
- 14) How does wireless charging technology for EVs work?
- a) It uses high-pressure hoses to transfer electricity
 - b) It relies on physical connections through cables
 - c) It uses electromagnetic fields to transfer power between a charging pad and the vehicle
 - d) It requires the EV to be stationary for hours during charging

Seat No.	
----------	--

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
2) Assume suitable data if necessary.
3) Figures to right indicate full marks.

Section – I

- Q.2 Answer the following question (Any Two) 14**
- Describe the consumption process of fuel and oxidation in a fuel cell, mentioning the reactions that occur at the anode and cathode
 - Explain the purpose of antilock braking systems (ABS). How do they prevent skidding and enhance braking performance during emergencies?
 - How do converters and inverters play a crucial role in power management and conversion in various electronic systems?
- Q.3 Answer the following question (Any Two) 14**
- What are some of the obstacles or challenges faced in the widespread adoption of fuel cells in various industries?
 - What is adaptive cruise control, and how does it differ from traditional cruise control systems? How does it contribute to both safety and convenience for drivers?
 - Discuss the potential risks associated with working on high-voltage systems, especially in automotive applications. What are the key safety precautions to be taken?
- Q.4 Answer the following questions. (Any Two) 14**
- List and explain at least three factors that can significantly affect the performance and efficiency of a fuel cell.
 - How does active suspension control improve ride comfort and handling?
 - What types of sensors are commonly used in autonomous electric vehicles (EVs) to perceive their surroundings?

Section – II

- Q.5 Answer the following questions. (Any Two) 14**
- What is path control in the context of autonomous vehicles? How do algorithms and sensors work together to ensure accurate path following and obstacle avoidance?
 - List and explain three advantages of electric vehicles (EVs) over traditional internal combustion engine vehicles.
 - Explain the concept of wireless charging for electric vehicles and its benefits compared to traditional plug-in charging.

Q.6 Answer the following questions. (Any Two)

- a) Define an Unmanned Ground Vehicle (UGV) and its primary applications. How does a UGV differ from a conventional human-operated vehicle in terms of control and functionality?
- b) Define intra-vehicle security in the context of electric vehicles. What are some potential vulnerabilities that could be exploited by unauthorized access?
- c) What are the key technological advancements expected to drive the future of electric cars?

Q.7 Answer the following questions. (Any Two)

- a) Explain the concept of layers of autonomy in autonomous vehicles. What are the typical levels or layers, and how do they progress from minimal to full automation?
- b) Explain how Autocrypt V2G benefits both EV owners and the power grid in terms of energy management and sustainability.
- c) Discuss the maintenance challenges specific to EVs, such as battery degradation and replacement costs.

Seat No.	
-------------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw flow charts wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) What is one advantage of using machine learning algorithms for path control in autonomous systems?
 - a) Limited adaptability to changing environments
 - b) Dependence on human intervention
 - c) Improved adaptability and learning from experience
 - d) Slower decision-making compared to traditional algorithms
- 2) What does ADAS technology aim to reduce in driving?
 - a) Fuel efficiency
 - b) Driver distraction
 - c) Vehicle maintenance costs
 - d) Traffic congestion
- 3) Which of the following is an advantage of regenerative braking in electric vehicles?
 - a) Increased brake pad wear
 - b) Improved energy efficiency and extended range
 - c) Reduced battery capacity
 - d) Higher energy consumption
- 4) When it comes to electric vehicle safety, what should first responders be trained to do?
 - a) Approach the vehicle without protective gear
 - b) Assume that EV accidents are identical to accidents involving traditional vehicles
 - c) Identify and follow proper shutdown procedures for the high-voltage system
 - d) Open the vehicle's battery compartment to check for damage
- 5) What is the primary focus of intra-vehicle security measures?
 - a) Protecting the vehicle from external threats
 - b) Protecting the vehicle's occupants and systems from internal threats
 - c) Ensuring vehicle performance
 - d) Enhancing fuel efficiency

- 6) What advantage does battery swap offer in terms of charging time compared to traditional plug-in charging?
- Battery swap takes longer to complete
 - Battery swap is faster and typically takes just a few minutes
 - Battery swap requires the EV to be stationary for hours
 - Battery swap reduces the vehicle's driving range
- 7) How does wireless charging technology for EVs work?
- It uses high-pressure hoses to transfer electricity
 - It relies on physical connections through cables
 - It uses electromagnetic fields to transfer power between a charging pad and the vehicle
 - It requires the EV to be stationary for hours during charging
- 8) What is the role of the catalyst in a fuel cell?
- It conducts electrons from the cathode to the anode.
 - It facilitates the reaction between hydrogen and oxygen.
 - It blocks the flow of protons through the membrane.
 - It stores energy for later use.
- 9) What is the primary function of a fuel cell?
- To store energy
 - To convert fuel into heat
 - To convert chemical potential energy into electrical energy
 - To generate mechanical power
- 10) Which component in an electric vehicle's traction control system is responsible for processing data from various sensors and making real-time control decisions?
- Battery pack
 - Electric motor
 - Traction control module
 - Headlights
- 11) Which of the following is NOT a potential benefit of traction control in electric vehicles?
- Improved safety
 - Enhanced efficiency
 - Extended battery life
 - Better handling and control
- 12) What is the minimum voltage required to trigger a thyristor into the conducting state?
- 0V
 - Half the supply voltage
 - Equal to the supply voltage
 - Double the supply voltage
- 13) Which semiconductor device is often referred to as a "latching" or "snap-action" switch and is commonly used in applications like motor control and lighting?
- Diode
 - Thyristor
 - BJT
 - MOSFET
- 14) What is path control in the context of robotics and automation?
- Managing road traffic signals
 - Navigating through GPS coordinates
 - Manipulating objects along a predefined trajectory
 - Controlling the speed of a vehicle

Seat No.	
-----------------	--

Set Q

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
2) Assume suitable data if necessary.
3) Figures to right indicate full marks.

Section – I

- Q.2 Answer the following question (Any Two) 14**
- a) Describe the consumption process of fuel and oxidation in a fuel cell, mentioning the reactions that occur at the anode and cathode
 - b) Explain the purpose of antilock braking systems (ABS). How do they prevent skidding and enhance braking performance during emergencies?
 - c) How do converters and inverters play a crucial role in power management and conversion in various electronic systems?
- Q.3 Answer the following question (Any Two) 14**
- a) What are some of the obstacles or challenges faced in the widespread adoption of fuel cells in various industries?
 - b) What is adaptive cruise control, and how does it differ from traditional cruise control systems? How does it contribute to both safety and convenience for drivers?
 - c) Discuss the potential risks associated with working on high-voltage systems, especially in automotive applications. What are the key safety precautions to be taken?
- Q.4 Answer the following questions. (Any Two) 14**
- a) List and explain at least three factors that can significantly affect the performance and efficiency of a fuel cell.
 - b) How does active suspension control improve ride comfort and handling?
 - c) What types of sensors are commonly used in autonomous electric vehicles (EVs) to perceive their surroundings?

Section – II

- Q.5 Answer the following questions. (Any Two) 14**
- a) What is path control in the context of autonomous vehicles? How do algorithms and sensors work together to ensure accurate path following and obstacle avoidance?
 - b) List and explain three advantages of electric vehicles (EVs) over traditional internal combustion engine vehicles.
 - c) Explain the concept of wireless charging for electric vehicles and its benefits compared to traditional plug-in charging.

Q.6 Answer the following questions. (Any Two)

- a) Define an Unmanned Ground Vehicle (UGV) and its primary applications. How does a UGV differ from a conventional human-operated vehicle in terms of control and functionality?
- b) Define intra-vehicle security in the context of electric vehicles. What are some potential vulnerabilities that could be exploited by unauthorized access?
- c) What are the key technological advancements expected to drive the future of electric cars?

Q.7 Answer the following questions. (Any Two)

- a) Explain the concept of layers of autonomy in autonomous vehicles. What are the typical levels or layers, and how do they progress from minimal to full automation?
- b) Explain how Autocrypt V2G benefits both EV owners and the power grid in terms of energy management and sustainability.
- c) Discuss the maintenance challenges specific to EVs, such as battery degradation and replacement costs.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw flow charts wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options.

14

- 1) When it comes to electric vehicle safety, what should first responders be trained to do?
 - a) Approach the vehicle without protective gear
 - b) Assume that EV accidents are identical to accidents involving traditional vehicles
 - c) Identify and follow proper shutdown procedures for the high- voltage system
 - d) Open the vehicle's battery compartment to check for damage
- 2) What is the primary focus of intra-vehicle security measures?
 - a) Protecting the vehicle from external threats
 - b) Protecting the vehicle's occupants and systems from internal threats
 - c) Ensuring vehicle performance
 - d) Enhancing fuel efficiency
- 3) What advantage does battery swap offer in terms of charging time compared to traditional plug-in charging?
 - a) Battery swap takes longer to complete
 - b) Battery swap is faster and typically takes just a few minutes
 - c) Battery swap requires the EV to be stationary for hours
 - d) Battery swap reduces the vehicle's driving range
- 4) How does wireless charging technology for EVs work?
 - a) It uses high-pressure hoses to transfer electricity
 - b) It relies on physical connections through cables
 - c) It uses electromagnetic fields to transfer power between a charging pad and the vehicle
 - d) It requires the EV to be stationary for hours during charging
- 5) What is the role of the catalyst in a fuel cell?
 - a) It conducts electrons from the cathode to the anode.
 - b) It facilitates the reaction between hydrogen and oxygen.
 - c) It blocks the flow of protons through the membrane.
 - d) It stores energy for later use.

- 6) What is the primary function of a fuel cell?
- a) To store energy
 - b) To convert fuel into heat
 - c) To convert chemical potential energy into electrical energy
 - d) To generate mechanical power
- 7) Which component in an electric vehicle's traction control system is responsible for processing data from various sensors and making real-time control decisions?
- a) Battery pack
 - b) Electric motor
 - c) Traction control module
 - d) Headlights
- 8) Which of the following is NOT a potential benefit of traction control in electric vehicles?
- a) Improved safety
 - b) Enhanced efficiency
 - c) Extended battery life
 - d) Better handling and control
- 9) What is the minimum voltage required to trigger a thyristor into the conducting state?
- a) 0V
 - b) Half the supply voltage
 - c) Equal to the supply voltage
 - d) Double the supply voltage
- 10) Which semiconductor device is often referred to as a "latching" or "snap-action" switch and is commonly used in applications like motor control and lighting?
- a) Diode
 - b) Thyristor
 - c) BJT
 - d) MOSFET
- 11) What is path control in the context of robotics and automation?
- a) Managing road traffic signals
 - b) Navigating through GPS coordinates
 - c) Manipulating objects along a predefined trajectory
 - d) Controlling the speed of a vehicle
- 12) What is one advantage of using machine learning algorithms for path control in autonomous systems?
- a) Limited adaptability to changing environments
 - b) Dependence on human intervention
 - c) Improved adaptability and learning from experience
 - d) Slower decision-making compared to traditional algorithms
- 13) What does ADAS technology aim to reduce in driving?
- a) Fuel efficiency
 - b) Driver distraction
 - c) Vehicle maintenance costs
 - d) Traffic congestion
- 14) Which of the following is an advantage of regenerative braking in electric vehicles?
- a) Increased brake pad wear
 - b) Improved energy efficiency and extended range
 - c) Reduced battery capacity
 - d) Higher energy consumption

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING

Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
 2) Assume suitable data if necessary.
 3) Figures to right indicate full marks.

Section – I

- Q.2 Answer the following question (Any Two) 14**
- Describe the consumption process of fuel and oxidation in a fuel cell, mentioning the reactions that occur at the anode and cathode
 - Explain the purpose of antilock braking systems (ABS). How do they prevent skidding and enhance braking performance during emergencies?
 - How do converters and inverters play a crucial role in power management and conversion in various electronic systems?
- Q.3 Answer the following question (Any Two) 14**
- What are some of the obstacles or challenges faced in the widespread adoption of fuel cells in various industries?
 - What is adaptive cruise control, and how does it differ from traditional cruise control systems? How does it contribute to both safety and convenience for drivers?
 - Discuss the potential risks associated with working on high-voltage systems, especially in automotive applications. What are the key safety precautions to be taken?
- Q.4 Answer the following questions. (Any Two) 14**
- List and explain at least three factors that can significantly affect the performance and efficiency of a fuel cell.
 - How does active suspension control improve ride comfort and handling?
 - What types of sensors are commonly used in autonomous electric vehicles (EVs) to perceive their surroundings?

Section – II

- Q.5 Answer the following questions. (Any Two) 14**
- What is path control in the context of autonomous vehicles? How do algorithms and sensors work together to ensure accurate path following and obstacle avoidance?
 - List and explain three advantages of electric vehicles (EVs) over traditional internal combustion engine vehicles.
 - Explain the concept of wireless charging for electric vehicles and its benefits compared to traditional plug-in charging.

Q.6 Answer the following questions. (Any Two)

- a) Define an Unmanned Ground Vehicle (UGV) and its primary applications. How does a UGV differ from a conventional human-operated vehicle in terms of control and functionality?
- b) Define intra-vehicle security in the context of electric vehicles. What are some potential vulnerabilities that could be exploited by unauthorized access?
- c) What are the key technological advancements expected to drive the future of electric cars?

Q.7 Answer the following questions. (Any Two)

- a) Explain the concept of layers of autonomy in autonomous vehicles. What are the typical levels or layers, and how do they progress from minimal to full automation?
- b) Explain how Autocrypt V2G benefits both EV owners and the power grid in terms of energy management and sustainability.
- c) Discuss the maintenance challenges specific to EVs, such as battery degradation and replacement costs.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING
Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in Answer Book Page No. 3 (starting page of the Answer Book). Each question carry one mark.
 - 2) Don't forget to mention Question Paper Set (P/Q/R/S) at the top of the same page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw flow charts wherever necessary

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

- 1) Which semiconductor device is often referred to as a "latching" or "snap-action" switch and is commonly used in applications like motor control and lighting?

a) Diode	b) Thyristor
c) BJT	d) MOSFET
- 2) What is path control in the context of robotics and automation?
 - a) Managing road traffic signals
 - b) Navigating through GPS coordinates
 - c) Manipulating objects along a predefined trajectory
 - d) Controlling the speed of a vehicle
- 3) What is one advantage of using machine learning algorithms for path control in autonomous systems?
 - a) Limited adaptability to changing environments
 - b) Dependence on human intervention
 - c) Improved adaptability and learning from experience
 - d) Slower decision-making compared to traditional algorithms
- 4) What does ADAS technology aim to reduce in driving?

a) Fuel efficiency	b) Driver distraction
c) Vehicle maintenance costs	d) Traffic congestion
- 5) Which of the following is an advantage of regenerative braking in electric vehicles?
 - a) Increased brake pad wear
 - b) Improved energy efficiency and extended range
 - c) Reduced battery capacity
 - d) Higher energy consumption

- 6) When it comes to electric vehicle safety, what should first responders be trained to do?
- Approach the vehicle without protective gear
 - Assume that EV accidents are identical to accidents involving traditional vehicles
 - Identify and follow proper shutdown procedures for the high-voltage system
 - Open the vehicle's battery compartment to check for damage
- 7) What is the primary focus of intra-vehicle security measures?
- Protecting the vehicle from external threats
 - Protecting the vehicle's occupants and systems from internal threats
 - Ensuring vehicle performance
 - Enhancing fuel efficiency
- 8) What advantage does battery swap offer in terms of charging time compared to traditional plug-in charging?
- Battery swap takes longer to complete
 - Battery swap is faster and typically takes just a few minutes
 - Battery swap requires the EV to be stationary for hours
 - Battery swap reduces the vehicle's driving range
- 9) How does wireless charging technology for EVs work?
- It uses high-pressure hoses to transfer electricity
 - It relies on physical connections through cables
 - It uses electromagnetic fields to transfer power between a charging pad and the vehicle
 - It requires the EV to be stationary for hours during charging
- 10) What is the role of the catalyst in a fuel cell?
- It conducts electrons from the cathode to the anode.
 - It facilitates the reaction between hydrogen and oxygen.
 - It blocks the flow of protons through the membrane.
 - It stores energy for later use.
- 11) What is the primary function of a fuel cell?
- To store energy
 - To convert fuel into heat
 - To convert chemical potential energy into electrical energy
 - To generate mechanical power
- 12) Which component in an electric vehicle's traction control system is responsible for processing data from various sensors and making real-time control decisions?
- Battery pack
 - Electric motor
 - Traction control module
 - Headlights
- 13) Which of the following is NOT a potential benefit of traction control in electric vehicles?
- Improved safety
 - Enhanced efficiency
 - Extended battery life
 - Better handling and control
- 14) What is the minimum voltage required to trigger a thyristor into the conducting state?
- OV
 - Half the supply voltage
 - Equal to the supply voltage
 - Double the supply voltage

Seat No.	
-----------------	--

Set S

**Fourth Y. (B.Tech.) (Sem-I) (New) (CBCS) Examination: March/April-2024
MECHANICAL ENGINEERING**

Advanced Topics in Electric Vehicles (BTN02717)

Day & Date: Sunday, 19-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) Answer any two questions from each section.
2) Assume suitable data if necessary.
3) Figures to right indicate full marks.

Section – I

- Q.2 Answer the following question (Any Two) 14**
- a) Describe the consumption process of fuel and oxidation in a fuel cell, mentioning the reactions that occur at the anode and cathode
 - b) Explain the purpose of antilock braking systems (ABS). How do they prevent skidding and enhance braking performance during emergencies?
 - c) How do converters and inverters play a crucial role in power management and conversion in various electronic systems?
- Q.3 Answer the following question (Any Two) 14**
- a) What are some of the obstacles or challenges faced in the widespread adoption of fuel cells in various industries?
 - b) What is adaptive cruise control, and how does it differ from traditional cruise control systems? How does it contribute to both safety and convenience for drivers?
 - c) Discuss the potential risks associated with working on high-voltage systems, especially in automotive applications. What are the key safety precautions to be taken?
- Q.4 Answer the following questions. (Any Two) 14**
- a) List and explain at least three factors that can significantly affect the performance and efficiency of a fuel cell.
 - b) How does active suspension control improve ride comfort and handling?
 - c) What types of sensors are commonly used in autonomous electric vehicles (EVs) to perceive their surroundings?

Section – II

- Q.5 Answer the following questions. (Any Two) 14**
- a) What is path control in the context of autonomous vehicles? How do algorithms and sensors work together to ensure accurate path following and obstacle avoidance?
 - b) List and explain three advantages of electric vehicles (EVs) over traditional internal combustion engine vehicles.
 - c) Explain the concept of wireless charging for electric vehicles and its benefits compared to traditional plug-in charging.

Q.6 Answer the following questions. (Any Two)

- a) Define an Unmanned Ground Vehicle (UGV) and its primary applications. How does a UGV differ from a conventional human-operated vehicle in terms of control and functionality?
- b) Define intra-vehicle security in the context of electric vehicles. What are some potential vulnerabilities that could be exploited by unauthorized access?
- c) What are the key technological advancements expected to drive the future of electric cars?

Q.7 Answer the following questions. (Any Two)

- a) Explain the concept of layers of autonomy in autonomous vehicles. What are the typical levels or layers, and how do they progress from minimal to full automation?
- b) Explain how Autocrypt V2G benefits both EV owners and the power grid in terms of energy management and sustainability.
- c) Discuss the maintenance challenges specific to EVs, such as battery degradation and replacement costs.

- 10)** Thermal relays are used for the protection of motors against over-current owing to: _____.
- a) Short circuit
 - b) Heavy loads
 - c) Earth fault
 - d) All the above

Seat No.	
-----------------	--

**Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electrical Estimation, Installation, and Testing (BTN07802)

Day & Date: Thursday, 09-05-2024

Max. Marks: 40

Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Answer any Five questions.

40

- a) What do you mean by preventive maintenance? State advantage of it.
- b) What are the types of fire extinguishers? State their applications.
- c) Give maintenance schedule for distribution transformers as per ISS 1886-1967.
- d) What are the requirements of foundations for installing rotating electrical machines as per IS 900-1992?
- e) What are type tests of 3ph transformers as per ISS? Explain any one in detail.
- f) What are the effects of mis-alignment?
- g) Write the different properties of transformer oil in detail.

- 10)** The impulse test level is determined by operating level is _____ times normal operating value.
- a) 1 to 2
 - b) 2 to 2.5
 - c) 4 to 5
 - d) 7 to 9

Seat No.	
-----------------	--

Set Q

**Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING**

Electrical Estimation, Installation, and Testing (BTN07802)

Day & Date: Thursday, 09-05-2024

Max. Marks: 40

Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Answer any Five questions.

40

- a) What do you mean by preventive maintenance? State advantage of it.
- b) What are the types of fire extinguishers? State their applications.
- c) Give maintenance schedule for distribution transformers as per ISS 1886-1967.
- d) What are the requirements of foundations for installing rotating electrical machines as per IS 900-1992?
- e) What are type tests of 3ph transformers as per ISS? Explain any one in detail.
- f) What are the effects of mis-alignment?
- g) Write the different properties of transformer oil in detail.

- 10)** Polarization index is greater than _____ for class A insulation.
- | | |
|------|--------|
| a) 1 | b) 1.5 |
| c) 2 | d) 2.5 |

Seat No.	
-----------------	--

Set R

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Estimation, Installation, and Testing (BTN07802)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Answer any Five questions.

40

- a) What do you mean by preventive maintenance? State advantage of it.
- b) What are the types of fire extinguishers? State their applications.
- c) Give maintenance schedule for distribution transformers as per ISS 1886-1967.
- d) What are the requirements of foundations for installing rotating electrical machines as per IS 900-1992?
- e) What are type tests of 3ph transformers as per ISS? Explain any one in detail.
- f) What are the effects of mis-alignment?
- g) Write the different properties of transformer oil in detail.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING

Electrical Estimation, Installation, and Testing (BTN07802)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct options.

10

- 1) Which insulating material is used for low voltage cables?
 - a) Impregnated paper
 - b) Rubber
 - c) Silk and cotton
 - d) Vulcanised Indian rubber
- 2) Brake test is _____ method of testing machine.
 - a) Regenerative
 - b) Direct
 - c) Indirect
 - d) All of these
- 3) The impulse test level is determined by operating level is _____ times normal operating value.
 - a) 1 to 2
 - b) 2 to 2.5
 - c) 4 to 5
 - d) 7 to 9
- 4) As per I.E.C. for 66 kv system voltage, the impulse withstand voltage is _____.
 - a) 100kv
 - b) 150kv
 - c) 220kv
 - d) 325kv
- 5) For class A insulating material, maximum operating temperature is _____.
 - a) 60°C
 - b) 90°C
 - c) 95°C
 - d) 105°C
- 6) Polarization index is greater than _____ for class A insulation.
 - a) 1
 - b) 1.5
 - c) 2
 - d) 2.5
- 7) While installing electrical machines, checking of foundation for correct level is to be carried out then, we use _____.
 - a) Spirit level
 - b) Dial indicator
 - c) Bearing puller
 - d) Filler gauge
- 8) Thermal relays are used for the protection of motors against over-current owing to: _____.
 - a) Short circuit
 - b) Heavy loads
 - c) Earth fault
 - d) All the above
- 9) Do's and Don'ts are observed carefully in safety precautions as per _____.
 - a) IS 5216-1962
 - b) IS 5216-1964
 - c) IS 5216-1966
 - d) IS 5216-1969

- 10) In fire extinguisher we use _____.
- a) CO_2
 - b) SO_2
 - c) O_2
 - d) H_2O

Seat No.	
-----------------	--

Set S

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Electrical Estimation, Installation, and Testing (BTN07802)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.2 Answer any Five questions.

40

- a) What do you mean by preventive maintenance? State advantage of it.
- b) What are the types of fire extinguishers? State their applications.
- c) Give maintenance schedule for distribution transformers as per ISS 1886-1967.
- d) What are the requirements of foundations for installing rotating electrical machines as per IS 900-1992?
- e) What are type tests of 3ph transformers as per ISS? Explain any one in detail.
- f) What are the effects of mis-alignment?
- g) Write the different properties of transformer oil in detail.

- 8) Which of the following is a disadvantage of most of the renewable energy sources?
- a) Highly polluting
 - b) High waste disposal cost
 - c) Unreliable supply
 - d) High running cost
- 9) Although solar-PV-generated electricity as a power source is cleaner than burning fossil fuels, the problem with this electricity is that it _____.
- a) is dangerous if stored too long
 - b) cannot be stored easily in large quantities for use when and where it is needed
 - c) is not sufficiently understood
 - d) is less efficient than fossil fuel
- 10) The range of wind speed suitable for wind power generators is _____.
- a) 0 to 5 m/s
 - b) 5 to 25 m/s
 - c) 25 to 50 m/s
 - d) 50 to 75 m/s

Seat No.	
---------------------	--

Set **P**

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Alternate Energy Systems (BTN07804)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Draw neat diagrams whenever necessary.

Section – I

- Q.2 Attempt any Two of the following. 08**
 a) Explain PV system design for various applications.
 b) Explain PV System Components of solar energy.
 c) Explain Site selection criteria of wind energy.
- Q.3 Attempt any Two of the following. 12**
 a) Explain Electrical characteristics of Silicon PV Cells and Modules.
 b) Draw and explain Power-Speed and Torque-Speed characteristics of wind energy.
 c) With the help of neat diagram explain terrestrial and an extra-terrestrial solar radiation.

Section – II

- Q.4 Attempt any Two of the following. 08**
 a) Explain fixed dome type biogas plant.
 b) Explain Integration of RES with grid.
 c) Explain Anaerobic Digestion process in Biomass energy.
- Q.5 Attempt any Two of the following. 12**
 a) Explain in details Economics of RES.
 b) Explain Biogas Technologies and their factor affecting Biogas Production.
 c) Explain Biomass Resources and their Energy Potential.

Seat
No.

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Alternate Energy Systems (BTN07804)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if necessary.
5) Draw neat diagrams whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct options.**10**

- 1) The radiation we receive on the earth's surface is _____.
a) terrestrial
b) extra-terrestrial
c) diffuse
d) beam
- 2) What is the standard value of solar constant?
a) 1 KW/m²
b) 1.367 KW/m²
c) 1.5 KW/m²
d) 5 KW/m²
- 3) Which of the following is a disadvantage of most of the renewable energy sources?
a) Highly polluting
b) High waste disposal cost
c) Unreliable supply
d) High running cost
- 4) Although solar-PV-generated electricity as a power source is cleaner than burning fossil fuels, the problem with this electricity is that it _____.
a) is dangerous if stored too long
b) cannot be stored easily in large quantities for use when and where it is needed
c) is not sufficiently understood
d) is less efficient than fossil fuel
- 5) The range of wind speed suitable for wind power generators is _____.
a) 0 to 5 m/s
b) 5 to 25 m/s
c) 25 to 50 m/s
d) 50 to 75 m/s
- 6) A two-blade wind turbine produces maximum power when the tip speed ratio is equal to _____.
a) π
b) 2π
c) 3π
d) 0.593
- 7) Compared to a petrol-operated engine, an ethanol-operated engine _____.
a) Produces 50% more power
b) produces 20% more power
c) Produces a comparable amount of power
d) produces 20% less power

- 8) Increasing the pressure inside a biogas plant _____.
- a) increases the gas production
 - b) decreases the gas production
 - c) has no effect on gas production
 - d) causes explosion
- 9) Which of the following is not a bio-mass source?
- a) Gobar gas
 - b) Coal
 - c) Wood
 - d) Nuclear Energy
- 10) The wind speed is measured using an instrument called
- a) Pyranometer
 - b) Manometer
 - c) Anemometer
 - d) Wind vane

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Alternate Energy Systems (BTN07804)

Day & Date: Thursday, 09-05-2024
Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.
4) Draw neat diagrams whenever necessary.

Section – I

- Q.2 Attempt any Two of the following. 08**
- a) Explain PV system design for various applications.
 - b) Explain PV System Components of solar energy.
 - c) Explain Site selection criteria of wind energy.
- Q.3 Attempt any Two of the following. 12**
- a) Explain Electrical characteristics of Silicon PV Cells and Modules.
 - b) Draw and explain Power-Speed and Torque-Speed characteristics of wind energy.
 - c) With the help of neat diagram explain terrestrial and an extra-terrestrial solar radiation.

Section – II

- Q.4 Attempt any Two of the following. 08**
- a) Explain fixed dome type biogas plant.
 - b) Explain Integration of RES with grid.
 - c) Explain Anaerobic Digestion process in Biomass energy.
- Q.5 Attempt any Two of the following. 12**
- a) Explain in details Economics of RES.
 - b) Explain Biogas Technologies and their factor affecting Biogas Production.
 - c) Explain Biomass Resources and their Energy Potential.

Seat No.	
----------	--

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Alternate Energy Systems (BTN07804)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 50

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 20 minutes in answer book Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Assume suitable data if necessary.
 5) Draw neat diagrams whenever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes

Marks: 10

Q.1 Choose the correct options.

10

- 1) Although solar-PV-generated electricity as a power source is cleaner than burning fossil fuels, the problem with this electricity is that it _____.
 a) is dangerous if stored too long
 b) cannot be stored easily in large quantities for use when and where it is needed
 c) is not sufficiently understood
 d) is less efficient than fossil fuel
- 2) The range of wind speed suitable for wind power generators is _____.
 a) 0 to 5 m/s
 b) 5 to 25 m/s
 c) 25 to 50 m/s
 d) 50 to 75 m/s
- 3) A two-blade wind turbine produces maximum power when the tip speed ratio is equal to _____.
 a) π
 b) 2π
 c) 3π
 d) 0.593
- 4) Compared to a petrol-operated engine, an ethanol-operated engine _____.
 a) Produces 50% more power
 b) produces 20% more power
 c) Produces a comparable amount of power
 d) produces 20% less power
- 5) Increasing the pressure inside a biogas plant _____.
 a) increases the gas production
 b) decreases the gas production
 c) has no effect on gas production
 d) causes explosion
- 6) Which of the following is not a bio-mass source?
 a) Gobar gas
 b) Coal
 c) Wood
 d) Nuclear Energy

- 7) The wind speed is measured using an instrument called
- a) Pyranometer
 - b) Manometer
 - c) Anemometer
 - d) Wind vane
- 8) The radiation we receive on the earth's surface is _____.
- a) terrestrial
 - b) extra-terrestrial
 - c) diffuse
 - d) beam
- 9) What is the standard value of solar constant?
- a) 1 KW/m^2
 - b) 1.367 KW/m^2
 - c) 1.5 KW/m^2
 - d) 5 KW/m^2
- 10) Which of the following is a disadvantage of most of the renewable energy sources?
- a) Highly polluting
 - b) High waste disposal cost
 - c) Unreliable supply
 - d) High running cost

Seat No.	
-------------	--

Set **R**

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Alternate Energy Systems (BTN07804)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Draw neat diagrams whenever necessary.

Section – I

- Q.2 Attempt any Two of the following. 08**
 a) Explain PV system design for various applications.
 b) Explain PV System Components of solar energy.
 c) Explain Site selection criteria of wind energy.
- Q.3 Attempt any Two of the following. 12**
 a) Explain Electrical characteristics of Silicon PV Cells and Modules.
 b) Draw and explain Power-Speed and Torque-Speed characteristics of wind energy.
 c) With the help of neat diagram explain terrestrial and an extra-terrestrial solar radiation.

Section – II

- Q.4 Attempt any Two of the following. 08**
 a) Explain fixed dome type biogas plant.
 b) Explain Integration of RES with grid.
 c) Explain Anaerobic Digestion process in Biomass energy.
- Q.5 Attempt any Two of the following. 12**
 a) Explain in details Economics of RES.
 b) Explain Biogas Technologies and their factor affecting Biogas Production.
 c) Explain Biomass Resources and their Energy Potential.

Seat No.	
-------------	--

Set **S**

Fourth Y. (B.Tech.) (Sem - II) (New) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Alternate Energy Systems (BTN07804)

Day & Date: Thursday, 09-05-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 40

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Assume suitable data if necessary.
 4) Draw neat diagrams whenever necessary.

Section – I

- Q.2 Attempt any Two of the following. 08**
 a) Explain PV system design for various applications.
 b) Explain PV System Components of solar energy.
 c) Explain Site selection criteria of wind energy.
- Q.3 Attempt any Two of the following. 12**
 a) Explain Electrical characteristics of Silicon PV Cells and Modules.
 b) Draw and explain Power-Speed and Torque-Speed characteristics of wind energy.
 c) With the help of neat diagram explain terrestrial and an extra-terrestrial solar radiation.

Section – II

- Q.4 Attempt any Two of the following. 08**
 a) Explain fixed dome type biogas plant.
 b) Explain Integration of RES with grid.
 c) Explain Anaerobic Digestion process in Biomass energy.
- Q.5 Attempt any Two of the following. 12**
 a) Explain in details Economics of RES.
 b) Explain Biogas Technologies and their factor affecting Biogas Production.
 c) Explain Biomass Resources and their Energy Potential.

Seat
No.

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Draw neat diagrams whenever necessary.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) The system is casual when the current output sample depends upon _____.
 a) current input sample
 b) current or next & past input samples
 c) current and/or past input samples and/or past output samples
 d) Next or past input sample or past output samples.
- 2) A necessary & sufficient condition for the LTI system to be BIBO stable is _____.
 a) $\sum_{n=-\infty}^{n=\infty} h > \infty$
 b) $\sum_{n=-\infty}^{n=\infty} h(n) < \infty$
 c) $\sum_{n=-\infty}^{n=\infty} h(n) = \infty$
 d) None
- 3) Multiplication is required to compute N point DFT _____.
 a) N
 b) N(N-1)
 c) N²
 d) N³
- 4) With zero padding DFT is used as _____.
 a) Circular filtering
 b) Linear filtering
 c) FFT calculations
 d) Overlap add method
- 5) Section convolution is performed if one of the sequences is much larger than the other to overcome _____.
 a) Long delay in getting output
 b) Larger memory space requirement
 c) both a & b
 d) None
- 6) The algorithm used for the computation of DFT based on the decomposition of N-point DFT is known as _____.
 a) Phase algorithm
 b) Overlap save
 c) Divide and Conquer
 d) None

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four of the following. 16

- Compute autocorrelation of the sequence $x(n) = \{4, 2, 5, 6, 3\}$
- The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
- Find IDFT of $X(k) = \{16 - 4 + 2j - 4 - 4 - 2j\}$
- Compare Wavelet Transform and Discrete Wavelet Transform.
- Explain DSP Architecture and how it can be used for the measurement of electrical quantities.

Q.3 Attempt any two of the following. 12

- Find linear convolution Using the overlap save method, of the following sequence.
 $x(n) = \{1, 2, 0, -3, 2, 2, 1, 0, -1, -1, 0, 1, 5, 7, 3\}$ $h(n) = \{1, 2, 2, 1\}$
- Explain the application of DSP in Power systems.
- Write in detail the properties of Discrete Wavelet Transform.

Section – II

Q.4 Attempt any four of the following. 16

- List down the design steps in implementing the IIR filter.
- What are finite word length effects in the FIR filter?
- State the advantage of digital filter over Analog filter.
- What is the warping effect? What is its effect on magnitude and phase response?
- Write a note on LMS Algorithm.

Q.5 Attempt any two of the following. 12

- Explain in detail Adaptive Signal Processing.
- Design seven coefficients FIR LPF using frequency sampling method with the following specifications.

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$
- Using Bilinear transformation obtain $H(z)$ if $\frac{1}{(s+1)^2}$ and $T = 0.1 \text{ Sec}$

Seat No.	
-------------	--

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Draw neat diagrams whenever necessary.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) The frequency sampling structure is efficient because _____.
 - a) sample points are less
 - b) some sampled DFT coefficients are zero when the filter is a narrow band
 - c) some sampled values can be assumed zero
 - d) parallel structures are efficient
- 2) The overall impulse response of two LTI systems connected in a cascade is equal to _____.
 - a) Sum of two impulse response
 - b) Multiplication of two impulse response
 - c) Convolution of the individual impulse response
 - d) None
- 3) Which of the following criterion can be used to optimize the M+1 filter coefficients?
 - a) Pade approximation method
 - b) Least squares error criterion
 - c) Least squares error criterion & Pade approximation method
 - d) None of the mentioned
- 4) Which of the following mapping is true between the s-plane and z-domain?
 - a) Points in LHP of the s-plane into points inside the circle in z-domain
 - b) Points in RHP of the s-plane into points outside the circle in z-domain
 - c) Points on the imaginary axis of the s-plane into points onto the circle in z-domain
 - d) All of the mentioned
- 5) The mapping of bilinear transformation is _____.

a) many-to-many mapping	b) many-to-one mapping
c) one-to-one mapping	d) None

Seat No.	
----------	--

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following. 16**
- Compute autocorrelation of the sequence $x(n) = \{4, 2, 5, 6, 3\}$
 - The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
 - Find IDFT of $X(k) = \{16 - 4 + 2j - 4 - 4 - 2j\}$
 - Compare Wavelet Transform and Discrete Wavelet Transform.
 - Explain DSP Architecture and how it can be used for the measurement of electrical quantities.
- Q.3 Attempt any two of the following. 12**
- Find linear convolution Using the overlap save method, of the following sequence.
 $x(n) = \{1, 2, 0, -3, 2, 2, 1, 0, -1, -1, 0, 1, 5, 7, 3\}$ $h(n) = \{1, 2, 2, 1\}$
 - Explain the application of DSP in Power systems.
 - Write in detail the properties of Discrete Wavelet Transform.

Section – II

- Q.4 Attempt any four of the following. 16**
- List down the design steps in implementing the IIR filter.
 - What are finite word length effects in the FIR filter?
 - State the advantage of digital filter over Analog filter.
 - What is the warping effect? What is its effect on magnitude and phase response?
 - Write a note on LMS Algorithm.
- Q.5 Attempt any two of the following. 12**
- Explain in detail Adaptive Signal Processing.
 - Design seven coefficients FIR LPF using frequency sampling method with the following specifications.

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$
 - Using Bilinear transformation obtain $H(z)$ if $\frac{1}{(s+1)^2}$ and $T = 0.1 \text{ Sec}$

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 3) Figures to the right indicates full marks.
 4) Draw neat diagrams whenever necessary.
 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which of the following mapping is true between the s-plane and z-domain?
 - a) Points in LHP of the s-plane into points inside the circle in z-domain
 - b) Points in RHP of the s-plane into points outside the circle in z-domain
 - c) Points on the imaginary axis of the s-plane into points onto the circle in z-domain
 - d) All of the mentioned
- 2) The mapping of bilinear transformation is _____.
 - a) many-to-many mapping
 - b) many-to-one mapping
 - c) one-to-one mapping
 - d) None
- 3) In the IIR system, which of the following structures will give a direct relation between the time domain and Z domain.
 - a) Direct form I
 - b) Direct form II
 - c) Cascade form
 - d) Parallel form
- 4) To avoid aliasing of frequency components which method is useful in designing filter _____.
 - a) impulse invariant
 - b) bilinear transformation
 - c) windowing techniques
 - d) None
- 5) The system is casual when the current output sample depends upon _____.
 - a) current input sample
 - b) current or next & past input samples
 - c) current and/or past input samples and/or past output samples
 - d) Next or past input sample or past output samples.
- 6) A necessary & sufficient condition for the LTI system to be BIBO stable is _____.
 - a) $\sum_{n=-\infty}^{n=\infty} h > \infty$
 - b) $\sum_{n=-\infty}^{n=\infty} h(n) < \infty$
 - c) $\sum_{n=-\infty}^{n=\infty} h(n) = \infty$
 - d) None

Seat No.	
----------	--

Set **R**

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four of the following. 16

- Compute autocorrelation of the sequence $x(n) = \{4, 2, 5, 6, 3\}$
- The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
- Find IDFT of $X(k) = \{16 - 4 + 2j - 4 - 4 - 2j\}$
- Compare Wavelet Transform and Discrete Wavelet Transform.
- Explain DSP Architecture and how it can be used for the measurement of electrical quantities.

Q.3 Attempt any two of the following. 12

- Find linear convolution Using the overlap save method, of the following sequence.
 $x(n) = \{1, 2, 0, -3, 2, 2, 1, 0, -1, -1, 0, 1, 5, 7, 3\}$ $h(n) = \{1, 2, 2, 1\}$
- Explain the application of DSP in Power systems.
- Write in detail the properties of Discrete Wavelet Transform.

Section – II

Q.4 Attempt any four of the following. 16

- List down the design steps in implementing the IIR filter.
- What are finite word length effects in the FIR filter?
- State the advantage of digital filter over Analog filter.
- What is the warping effect? What is its effect on magnitude and phase response?
- Write a note on LMS Algorithm.

Q.5 Attempt any two of the following. 12

- Explain in detail Adaptive Signal Processing.
- Design seven coefficients FIR LPF using frequency sampling method with the following specifications.

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$
- Using Bilinear transformation obtain $H(z)$ if $\frac{1}{(s+1)^2}$ and $T = 0.1 \text{ Sec}$

Seat No.	
----------	--

Set	S
-----	---

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 70

- Instructions:**
- 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in answer book. Page no 03 (Starting page of the Answer Book). Each question carries one mark.
 - 2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
 - 3) Figures to the right indicates full marks.
 - 4) Draw neat diagrams whenever necessary.
 - 5) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) The algorithm used for the computation of DFT based on the decomposition of N-point DFT is known as _____.
 - a) Phase algorithm
 - b) Overlap save
 - c) Divide and Conquer
 - d) None
- 2) When a sequence is circularly shifted in time by 5 units, the magnitude response _____.
 - a) Increase by 5
 - b) Remain unchanged
 - c) Shift by 5 units
 - d) None
- 3) The frequency sampling structure is efficient because _____.
 - a) sample points are less
 - b) some sampled DFT coefficients are zero when the filter is a narrow band
 - c) some sampled values can be assumed zero
 - d) parallel structures are efficient
- 4) The overall impulse response of two LTI systems connected in a cascade is equal to _____.
 - a) Sum of two impulse response
 - b) Multiplication of two impulse response
 - c) Convolution of the individual impulse response
 - d) None
- 5) Which of the following criterion can be used to optimize the M+1 filter coefficients?
 - a) Pade approximation method
 - b) Least squares error criterion
 - c) Least squares error criterion & Pade approximation method
 - d) None of the mentioned

- 6) Which of the following mapping is true between the s-plane and z-domain?
 a) Points in LHP of the s-plane into points inside the circle in z-domain
 b) Points in RHP of the s-plane into points outside the circle in z-domain
 c) Points on the imaginary axis of the s-plane into points onto the circle in z-domain
 d) All of the mentioned
- 7) The mapping of bilinear transformation is _____.
 a) many-to-many mapping b) many-to-one mapping
 c) one-to-one mapping d) None
- 8) In the IIR system, which of the following structures will give a direct relation between the time domain and Z domain.
 a) Direct form I b) Direct form II
 c) Cascade form d) Parallel form
- 9) To avoid aliasing of frequency components which method is useful in designing filter _____.
 a) impulse invariant b) bilinear transformation
 c) windowing techniques d) None
- 10) The system is casual when the current output sample depends upon _____.
 a) current input sample
 b) current or next & past input samples
 c) current and/or past input samples and/or past output samples
 d) Next or past input sample or past output samples.
- 11) A necessary & sufficient condition for the LTI system to be BIBO stable is _____.
 a) $\sum_{n=-\infty}^{n=\infty} h > \infty$ b) $\sum_{n=-\infty}^{n=\infty} h(n) < \infty$
 c) $\sum_{n=-\infty}^{n=\infty} h(n) = \infty$ d) None
- 12) Multiplication is required to compute N point DFT _____.
 a) N b) N(N-1)
 c) N² d) N³
- 13) With zero padding DFT is used as _____.
 a) Circular filtering b) Linear filtering
 c) FFT calculations d) Overlap add method
- 14) Section convolution is performed if one of the sequences is much larger than the other to overcome _____.
 a) Long delay in getting output
 b) Larger memory space requirement
 c) both a & b
 d) None

Seat No.	
----------	--

Set **S**

T. Y. (B.Tech.) (Sem-II) (CBCS) Examination: March/April-2024
ELECTRICAL ENGINEERING
Digital Signal Processing (197045708)

Day & Date: Wednesday, 05-06-2024
 Time: 03:00 PM To 06:00 PM

Max. Marks: 56

- Instructions:** 1) All questions are compulsory.
 2) Figures to the right indicate full marks.
 3) Draw neat diagrams whenever necessary.
 4) Assume suitable data if necessary.

Section – I

- Q.2 Attempt any four of the following. 16**
- Compute autocorrelation of the sequence $x(n) = \{4, 2, 5, 6, 3\}$
 - The first 5 points of the 8-point DFT of a real-valued sequence are $\{28, -4 + j9.565, -4 + j4, -4 + j1.656, -4\}$ Determine the remaining 3 Points.
 - Find IDFT of $X(k) = \{16 - 4 + 2j - 4 - 4 - 2j\}$
 - Compare Wavelet Transform and Discrete Wavelet Transform.
 - Explain DSP Architecture and how it can be used for the measurement of electrical quantities.
- Q.3 Attempt any two of the following. 12**
- Find linear convolution Using the overlap save method, of the following sequence.
 $x(n) = \{1, 2, 0, -3, 2, 2, 1, 0, -1, -1, 0, 1, 5, 7, 3\}$ $h(n) = \{1, 2, 2, 1\}$
 - Explain the application of DSP in Power systems.
 - Write in detail the properties of Discrete Wavelet Transform.

Section – II

- Q.4 Attempt any four of the following. 16**
- List down the design steps in implementing the IIR filter.
 - What are finite word length effects in the FIR filter?
 - State the advantage of digital filter over Analog filter.
 - What is the warping effect? What is its effect on magnitude and phase response?
 - Write a note on LMS Algorithm.
- Q.5 Attempt any two of the following. 12**
- Explain in detail Adaptive Signal Processing.
 - Design seven coefficients FIR LPF using frequency sampling method with the following specifications.

$$H_d(e^{jw}) = e^{-j(N-1)w/2} \quad \text{for } 0 \leq w \leq \pi/2$$

$$= 0 \quad \text{for } \pi/2 \leq w \leq \pi$$
 - Using Bilinear transformation obtain $H(z)$ if $\frac{1}{(s+1)^2}$ and $T = 0.1 \text{ Sec}$